Measuring Firms' Market Orientation Using Textual Analysis of 10-K Filings

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ABSTRACT

Market-oriented firms are committed to understanding their customers' evolving expectations and meeting their needs, while outwitting competitors, to achieve a sustainable competitive advantage and improve performance. This paper develops a measure for market orientation based on textual analysis of 10-K filings. It utilizes a bag-of-words method to identify relevant information from the management's disclosure that underpins the corporate traits measured by the MKTOR scale, a renowned survey instrument for measuring market orientation. Unlike previous studies that rely extensively on small-scale survey data to estimate market orientation, this novel method leverages instead on the use of big public archival data. We empirically establish strong construct validity for the measures of market orientation and its components, namely customer orientation and competitor orientation. Furthermore, our analyses demonstrate that firms' performance is positively affected by market orientation and that this relationship is more pronounced in competitive environments. We contribute to the literature by developing an elegant measure of market orientation, which allows for conducting large-scale longitudinal analyses of its antecedents and consequences.

Keywords: Market orientation; Customer orientation; Competitor orientation; MKTOR scale; Firm performance; 10-K filings; Textual analysis; Bag-of-words method.

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1 INTRODUCTION

Market-oriented firms endeavour to create superior value for customers by understanding their evolving needs and catering to their expectations, while remaining aware of the capabilities and tactics of their competitors, to achieve a sustainable competitive advantage (Narver and Slater, 1990; Slater and Narver, 1998). A burgeoning literature in the marketing and management fields extensively investigates the relationship between market orientation and firm performance, albeit exhibiting a variation in findings regarding the magnitude and direction of this relationship.[1] Predominantly, to measure market orientation, most studies rely on data gathered through survey instruments, such as the renowned MKTOR scale of Narver and Slater (1990). Nevertheless, field-work surveys must maintain a narrow focus to be effective, typically rely on a single point-in-time sampling and are frequently based on small samples of interviews (Kirca *et al*., 2005).

Conversely, our study demonstrates how market orientation can be measured using textual analysis from management's disclosure in 10-K filings, thereby for the first time enabling large-scale longitudinal analyses of its antecedents and consequences.[2] We detail this novel measurement approach that operationalizes market orientation using archival data, and assess the generalizability of its relationship with performance, based on a large sample of US publicly listed firms with 58,595 firm-year observations in the period from 1994 to 2017. In this respect, *inter alia*, our study contributes to the body of knowledge surrounding the use of big data to understand firms' processes and decision-making. As such, managerial teams, strategists and business consultants can benefit from exploiting public archival information in 10-K filings for gauging their competitors' capabilities and operating philosophies. At the same time, even to date there are calls for conducting more research on the direct link between market orientation and firm performance (Gupta *et al*., 2017). In this respect, our measure

[1] A non-exhaustive list of studies that empirically consider this relation includes Narver and Slater (1990), Jaworski and Kohli (1993), Slater and Narver (1994), Slater and Narver (2000), Agarwal *et al*. (2003), Hult *et al*. (2005), Ellis (2006), Korschun *et al*. (2014), Najafi-Tavani *et al*. (2016), and Tajeddini and Ratten (2017).

[2] Managers from U.S. publicly listed companies are required to file10-K reports each year with the U.S. Securities and Exchange Commission (SEC). 10-Ks' verbiage features a detailed review of the firm's business and the market it operates in, the risk factors it faces and the financial results of the fiscal year. The SEC requires public companies to disclose meaningful, comprehensive and accurate financial information to market participants. Managers are held liable and accountable before the law if they provide false or misleading information in the disclosures.

widens the scope for researchers to scrutinize big data for measuring latent firm characteristics and testing theoretical relationships by relying on large-scale empirical analyses.

To operationalize our measure, we develop bags of words comprising *core* and *contextual words* that underpin the corporate traits measured by the MKTOR scale developed by Narver and Slater (1990). The *core words* are word stems appearing in the MKTOR that characterize the two most important behavioural components of market orientation, namely customer orientation and competitor orientation. The *contextual words* are word stems appearing in the MKTOR in combination with the core words. These words are used in the MKTOR in a context that elucidates the emphasis that a firm is placing on traits that shape its market orientation. Our measure of market orientation is based on the proportion of times that certain *core-contextual word pairs* occur in the 10-K filings. To the best of our knowledge, this paper for the first time develops a bags-of-words-based textual measure by utilizing contextual information in widely used survey instruments.

We assess the construct validity of our market orientation measure by testing the following relationships, which strongly vindicate the accuracy of the measure. Since market orientation reflects traits that shape a firm's culture, we expect it to be persistent in time (Narver and Slater, 1990; Deshpande *et al.*, 1993). Further, we argue that firms with greater levels of market orientation should have greater responsiveness to customers' needs and preferences, thereby achieving greater levels of customer satisfaction (Kohli and Jaworski, 1990). In addition, this relation should be primarily driven by the customer orientation component, since this component reflects the emphasis firms place on understanding and catering to their customers' evolving expectations. We also argue that greater levels of market orientation should characterize firms facing greater levels of market concentration. Further, this relation should be primarily driven by the competitor orientation component, since this component features the level of emphasis that firms place on a course of action directed at outwitting competitors and gaining a sustainable competitive advantage (Jaworski and Kohli, 1993; Slater and Narver, 1994). The findings of our empirical analysis endorse the above expectations and confirm the validity of the measure.

Following the validation of the measure, we study the key question: *what is the effect of firms' market orientation on performance?* This is important to investigate empirically for several reasons. The seminal studies posit that market orientation relates to the forceful pursuit of customer satisfaction and competitiveness through the processes of acquiring and evaluating market information in a systematic and anticipatory fashion (Kohli and Jaworski, 1990; Narver and Slater, 1990). As such, market orientation enhances the firm's ability to adapt to newer developments in a much more timely and efficient manner within the competitive market environment. Given the extensive work in this area, the predominant view is that market orientation is positively associated with performance (Narver and Slater, 1990; Jaworski and Kohli, 1993; Slater and Narver, 1994; Hult *et al*., 2005; Ellis, 2006; Korschun *et al*., 2014; Kiessling *et al*., 2016; Najafi-Tavani *et al*., 2016; Tajeddini and Ratten, 2017). Conversely, some studies find potential mediating effects that counteract this positive relationship (Greenley, 1995; Chan and Ellis, 1998; Gray *et al*., 1998, Harris, 2001; Agarwal *et al*., 2003; Langerak, 2003). The mixed evidence therefore begs the important question as to whether market orientation is beneficial or detrimental to firms' performance, and under what conditions can we expect the relationship between market orientation and firm performance to vary. Further, revisiting the effect of market orientation on performance for a large longitudinal sample of US firms remains of paramount importance in light of prior findings that suggest a weaker relationship among US firms when compared to non-US firms (Shoham *et al*., 2005; Gupta *et al*., 2017). Evaluating this relationship, we find robust empirical evidence that market orientation has a strong positive effect on firms' operating performance and that this relationship is stronger when firms face more competition.

Overall, our paper makes three important contributions to the extant literature. Firstly, by exploiting a large corpus of publicly available data, our findings provide for the first time longitudinal evidence for a strong positive influence of market orientation on firm performance, thus complementing the evidence in prior notable studies (for example, Jaworski and Kohli, 1993; Slater and Narver, 2000; Kirca *et al.*, 2005; Tajeddini and Ratten, 2017). Secondly, we provide strong evidence that the competitive intensity of a firm's market moderates the relationship between market orientation and performance. In an era whereby the increasingly rapid rate of technological change and globalization

foster more competition among firms, this evidence contributes to the burgeoning literature (for example, Kirca *et al*., 2005; Chang *et al*., 2014; Kiessling *et al.*, 2016; Gupta *et al*., 2017; Tajeddini and Ratten, 2017) by identifying competitive intensity as an important moderating factor in the relationship between market orientation and firm performance. Thirdly, market orientation is generally regarded as one of marketing's seminal concepts and is conceptualised as an important attribute of firms' corporate culture, with well over 1000 academic articles written on the topic over the years (Jaworski and Kohli, 2017). Our novel methodology enables the large-scale quantification of this very important concept using a simple approach that is easy to implement. Thus, our methodological approach could be considered as a solution to the challenge imposed by severe data limitations associated with the usage of survey instruments to measure latent corporate characteristics.

2 MEASURES, CONSTRUCT VALIDITY AND HYPOTHESES

2.1 Measurement of Market Orientation

Market orientation reflects the type of organizational climate that most effectively promotes the necessary behaviours to enable the firm to create superior value (Deshpandé *et al*., 1993; Slater and Narver, 1994; Homburg and Pflesser, 2000; Gupta *et al*., 2017). Narver and Slater (1990) conceptualize market orientation as a corporate culture that reflects three behavioural components of firms, namely *customer orientation*, *competitor orientation*, and *inter-functional coordination*. Accordingly, customer orientation underlies traits that empower the firm to understand customers' needs, wants, and desires; competitor orientation underlies traits that drive the firm to understand the short-term strengths and weaknesses, as well as the long-term capabilities and strategies of its competitors; whilst inter-functional coordination underlies the coordination of firms' resources to deliver value for customers.

Traditionally, market orientation is measured using single point-in-time survey instruments. Narver and Slater (1990) proposed the MKTOR scale, an instrument designed to measure

management's level of agreement to statements underscoring the three behavioural components.[3] In theory, the survey instruments should enable researchers to credibly capture firms' market orientation after interviewing a large sample of executives. In practice, however, this approach is rather limited, as it requires access to large numbers of executives. Accordingly, most studies use information stemming from small samples, usually covering far fewer than 1,000 observations. For instance, out of 58 studies discussed in Cano *et al*.'s (2004) meta-review, 36 rely on a sample of fewer than 200 observations, 21 use a sample that is between 200 and 500 observations, and only one uses 1,396 observations. Such small-scale investigations remain susceptible to many potential sources of errors, which challenge the generalizability of the findings.

We instead conduct textual analysis of firms' 10-K filings, thereby enabling the quantification of market orientation for a large sample of publicly listed US firms. 10-K filings provide management's disclosure of, *inter alia*, the company's businesses and operations, including its main products and services, the market environment and conditions in which it operates, the risk factors and prospects the company faces, and the financial results of the fiscal year. We therefore argue that management's disclosures in 10-K filings can convey valuable information regarding a firm's market orientation outlook. In fact, recent studies have identified narrative disclosure in 10-K filings as a channel for managers to convey to market participants useful and important information about distinctive, yet latent, firm traits. For example, Balvers *et al*. (2016) find that 10-K filings feature important information that managers use to communicate the importance of customer satisfaction in their firms, whilst Li *et al*. (2013) find that they feature important information about the firm's competitive environment.

The textual-based method employed in this study has several advantages. Firstly, it is not constrained in a single point-in-time analysis because it allows sampling information from a broad range of firms across a long time-period. Hence, it enables longitudinal analyses and reduces sample selection bias that can otherwise unduly confound inferencing. Secondly, it enables the inspection of management's disclosure in the 10-K filings, for which managers bear the fiduciary responsibility to

[3] We choose this scale since it is widely used in the literature (see, for example, Slater and Narver, 1994; Ellis, 2006; Wang and Miao 2015; Sahi *et al.*, 2016), and in general is found to outperform other scales when it comes to explaining variations in firm performance (Oczkowski and Farrell, 1998; Kirca *et al.*, 2005).

communicate reliable and up-to-date firm-specific information to shareholders. Thirdly, it is based on the bag-of-words method, which is simple and has been shown to be suitable for identifying latent firm traits from 10-K filings (Li *et al*., 2013; Merkley, 2013; Fiordelisi and Ricci, 2014; Audi *et al*., 2016; Balvers *et al*., 2016; Loughran and McDonald, 2016; Nguyen *et al*., 2019).

To implement our method, we parse the statements of the MKTOR scale to develop bags of words, classified as *core words* and *contextual words.* Accordingly, we scrutinize lexical words (i.e. nouns, verbs, and adjectives) in each statement to identify word stems that detail the important corporate traits in the MKTOR scale. Particularly, the *core words* are prominent words that recurrently appear in the statements of the MKTOR scale and characterize a firm's emphasis on market orientation's behavioural components. We posit that the extent to which firms refer to these core words in the 10-K filings should provide insights into their market orientation. However, the mere counting of instances where the core words occur in 10-Ks could lead to the inclusion of instances whereby these words are disclosed in a different context, albeit inconsistent with the corporate traits measured by the MKTOR scale. Hence, to enhance precision we also include the *contextual words*, which are words that appear in the statements of the MKTOR scale in combination with the core words. As such, we conjecture that textual analysis of the 10-Ks using the *core-contextual word pairs* enables us to identify patterns of meaning underpinning the corporate traits encapsulated in the statements of the MKTOR scale.

In more detail, as shown in Appendix A, the MKTOR scale is comprised of 14 statements, whereby statements 1 to 6 capture customer orientation, statements 7 to 10 capture competitor orientation, and statements 11 to 14 capture inter-functional coordination. Evidently, the most recurring words relating to the behavioural components of market orientation are: "customer" for statements relating to customer orientation; "competit/or/ive" for statements relating to competitor orientation; and "customer" for statements relating to inter-functional coordination. Given the overlap between the customer orientation and inter-functional coordination, our method consolidates these two dimensions. This choice is also justified by the empirical observations of prior studies, which support via confirmatory factor analysis that statements purporting to measure inter-functional coordination either cross-load heavily or are subsumed under the statements regarding customer orientation (Siguaw and

Diamantopoulos, 1995). Furthermore, it is likely that when managers make disclosures in 10-K reports, in addition to the words "customer" and "competit/or/ive", they may use synonyms of these words; accordingly, we utilize Princeton University's WorldNet Lexical Database and Harvard IV-4 Psychosocial Dictionary to identify synonyms of these words for inclusion in our analyses (see Table 1).

Next, the MKTOR statements are scrutinized to identify recurring words used to capture firms' behaviours with respect to customer orientation, particularly words that detail contextual information for corporate traits within this component. This investigation reveals the following *customer-oriented contextual words*: "satisf/y/action", "commit/ment", "need/s", "serv/ice/ing", "target/s", "understand/ing", "value\s", "visit/ation/ing/s", "inform/ation", "communicat/e/ion".[4] Likewise, it reveals the following *competitor-oriented contextual words*: "action\s", "threat\s", "respond\s", "advantage", "develop/ment/ing", "strength/en/s", "strateg/y/ies", "information", "communicat/e/ion".[5] Table 1 tabulates these contextual words (in bold fonts) under the two orientations, each word followed by its synonyms.

[Insert Table 1 here]

We then form all possible word pairings by combining the bag of words that includes the customer-oriented core words with the bag of words that includes the customer-oriented contextual words, resulting in *customer-oriented core-contextual word pairs*. Likewise, we form all possible word combinations using the bag of words including the competitor-oriented core words and the competitor-oriented contextual words, respectively, resulting in *competitor-oriented core-contextual word pairs*. Appendix B presents selected excerpts from firms' 10-K filings to illustrate some examples of core-contextual word pairs. We then exploit these core-contextual word pairings to measure independently the two behavioural components of market orientation as follows: per annual 10-K filing, we count the occurrences whereby a contextual word appears within a span of four lexical words (-4 and +4) of one

[4] The words "target/s", "visit/ation/ing/s", "inform/ation" and "communicat/e/ion" (and their synonyms) are included to capture contextual information relating to inter-functional coordination.
[5] The words "communicat/e/ion" are included to capture contextual information relating to "share information" as per item 7.

of the core words, and then normalize the count based on the firm's 10-K filing length.[6] To enhance precision, we ignore instances where "no", "non", "not", "less", "few" or "limited" precede the core word by four or fewer words.

Specifically, market orientation (*MO*), customer orientation (*CUST*), and competitor orientation (*COMP*) are computed as:

$$MO = CUST + COMP, \tag{1}$$

where

$$CUST = \frac{Number\ of\ customer-oriented\ core-contextual\ word\ pairs}{Total\ number\ of\ words\ in\ firm's\ 10-K\ filing}, \tag{2}$$

and

$$COMP = \frac{Number\ of\ competitor-oriented\ core-contextual\ word\ pairs}{Total\ number\ of\ words\ in\ firm's\ 10-K\ filing}. \tag{3}$$

Eq. (1) is consistent with theory suggesting that the behavioural components are equally important in defining a firm's market orientation, while aligning well with seminal studies that conceptualize market orientation as a continuum rather than as being either present or absent (Kohli and Jaworski, 1990; Narver and Slater, 1990; Deshpande *et al.*, 1993).

To lend credence to our method, Figure 1 Panel A shows the frequencies of the core words along with those of the core-contextual word pairs respectively for customer orientation and competitor orientation. The figure shows that *customer-oriented core words* occur 14,347,013 times in all 10-K filings we have in our sample, but *customer-oriented contextual word pairs* occur only 1,939,634 times (a proportion of 13.52%). Likewise, *competitor-oriented core words* occur 6,909,214, but *competitor-oriented contextual word pairs* occur only 759,851 times (a proportion of 11%). The huge disparity between the occurrences of core-contextual word pairs and those of when core words alone attest that 10-K filings portray a vast number of instances where core words are used in contexts probably

[6] The pairing of a contextual word, wherever it occurs, within a span of four (-4 and +4) lexical words from the core word is in the spirit of Merkley (2013), who develops a bag of common phrases occurring in 10-K filings that span four words or fewer, to capture management's narratives. From a linguistics viewpoint, there is strong evidence that most syntagmatic lexical relations relate words separated by at most five other words (see Martin *et al.*, 1983; Smadja, 1993), hence any span choice of fewer than five lexical words seems empirically reasonable. Our results however remain robust when using instead a span of either three or five lexical words (see Tables A.2 – A.9 of the online appendix for results).

irrelevant for measuring market orientation. Further, in Panel B of Figure 1, we show that the pool of words used to quantify market orientation do not overlap with the positive and negative sentiment dictionaries of Loughran and McDonald (2011); hence lending more credence to our bag-of-words method.

[Insert Figure 1 here]

2.2 Construct Validity of the Market Orientation Measure

We empirically assess the construct validity of the market orientation measure (*MO*) and its behavioural components, customer orientation (*CUST*) and competitor orientation (*COMP*), by examining how well it relates to other observable firm characteristics predicted by theory.

Firstly, since market orientation reflects corporate traits that underpin the culture of the firm, it should change rather slowly over time (Narver and Slater, 1990; Jaworski and Kohli; 1993; Kirca *et al.*, 2005), and thus we expect *MO* to be a persistent firm characteristic.

Secondly, prior studies suggest that market orientation is positively associated with customer satisfaction (Kohli and Jaworski, 1990; Slater and Narver, 1998; Wang and Miao, 2015). This relationship has been posited primarily because market orientation involves catering to customer needs and desires to deliver superior value for them. Therefore, a thrust towards greater market orientation is likely to have a positive influence on customers' attitudes about, and their behaviours towards, the firm. In this vein, we expect *MO* to be positively related to customer satisfaction. Also, since a firm's customer orientation is the central element of market orientation that is linked to customer satisfaction, we expect this positive relationship to be primarily driven by the customer orientation component (*CUST*).

Thirdly, a firm's environmental condition is theorized to influence the relative importance of market orientation, with higher levels of market orientation being associated with greater levels of market concentration, principally because of increased focus on the firm's competitive threats. This is reasonable since in highly concentrated markets, the number of powerful competitors is relatively small;

thus, any of the leading competitors has the capacity to substantially affect the competitive intensity in the market (Porter, 1980). By contrast, when there are many competitors in an industry, competitor monitoring is both more difficult and potentially less important. This is because no one competitor has the capacity or resources to alter substantially the balance of power among the sellers. Thus, we expect *MO* to be positively related to market concentration and this positive relationship to be primarily driven by firms' competitor orientation component (*COMP*).

2.3 The Effect of Market Orientation on Firm Performance

Traditionally, the predominant view is that market orientation is positively associated with operating performance. Seminal studies have suggested that market-oriented firms cater to customer needs and preferences, while simultaneously monitoring and responding to competitive threats (Kohli and Jaworski, 1990; Narver and Slater, 1990). In this vein, many studies support the notion that leveraging customer power and focusing on the competitive dynamics matter for achieving superior performance (Kirca *et al*., 2005; Chang *et al*., 2014; Carpenter, 2017). This is primarily because market orientation generates greater customer and competitive knowledge advantages for firms, which is argued to in turn lead to more relevant and superior products, and an enhanced ability to address market developments in a more effective and efficient manner (Slater and Narver, 1994). Thus, unsurprisingly and despite some evidence to the contrary (cf., Chan and Ellis 1998; Gray *et al*. 1998, Harris 2001), most studies that explore the relation between market orientation and firm performance support the notion that market orientation strengthens a firm's performance (see also, Korschun *et al*., 2014; Kiessling *et al*., 2016; Najafi-Tavani *et al*., 2016; Tajeddini and Ratten, 2017).

Moreover, Doyle and Wong (1998) find that market orientation is in fact the second most important driver of firms' performance. Therefore, we can reasonably conclude that the market orientation strategies of the firm lead it to conduct ongoing monitoring of customers' needs and market conditions. As a result, market orientation helps firms to prepare and respond to these needs by innovating and introducing appropriate products and services to the market. Hence, market orientation plays a primary role in the generation and dissemination market intelligence (Kohli and Jaworski, 1990)

that gives the firm knowledge and competitive advances that should result in superior firm performance. Thus, we hypothesize that a firm's market orientation should be positively related to operating performance:

H_1: Market orientation is positively related to operating performance.

Further, prior literature argues that environmental factors such as the competitive intensity of the market moderate the relationship between market orientation and performance (Jaworski and Kohli, 1993; Homburg and Pflesser, 2000). As such, in the absence of competitors, a firm may perform well irrespective of its market orientation, since customers are "forced" to consume the firm's products. In this setting, a firm has greater market power relative to consumers, and hence can dictate the terms of its relationship with them. However, when a firm operates in a competitive environment, to maintain a sustainable competitive advantage, it focuses on business functions that deliver better and different products and services than those offered by their competitors. This is in part because when competition is high, customers have many alternative options to satisfy their needs and wants. To be sure, in highly competitive environments customer power is enhanced; hence, being innovative in introducing appropriate products and services to the market in order to meet customer needs is arguably of extreme importance. Thus, when competition is high, firms have a compelling need to cater to their customers' needs and wants in order to increase sales and achieve revenue expansion. At the same time, firms seeking to improve their market share to achieve superior long-term performance also have incentives to be more sensitive to customer demands (Mittal et al., 2005) and this is particularly true in highly dynamic market environments (Kohli and Jaworski, 1990; Jaworski and Kohli, 1993; Homburg and Pflesser, 2000). Hence, it is reasonable to conclude that market orientation is a more important determinant of performance under conditions of highly competitive intensity. Thus, we hypothesize that:

H_2: The relationship between market orientation and operating performance is stronger when competitive intensity is greater.

3 DATA AND VARIABLES

3.1 Data

We build a unique dataset by merging information from various data sources. We obtain annual firm-level accounting and financial data for US publicly traded firms from Compustat. To measure market orientation, we obtain firms' 10-K filings from the SEC Edgar database. To help identify periods of expected variability in the level of market competition, we obtain US tariff data for each 3-digit SIC industry year from NBER. Finally, we measure the satisfaction of consumers across the firms in our sample by collecting data on customer satisfaction from the American Customer Satisfaction Index.

Our analysis is carried out for all firms included in the Compustat database excluding financials (SIC 6000-6999) and utilities (SIC 4900-4999) spanning the period 1994─2017. 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 all firm-year observations with missing data on the variables of interest. This results in a final main sample consisting of 58,595 firm-year observations. Table 2 reports the definitions of all variables.

[Insert Table 2 here]

3.2 Dependent Variables

We compute the following dependent variables: customer satisfaction, *SAT*; market concentration, *MKCON*, and return on assets, *ROA*. We define *SAT* as the firm's industry American Customer Satisfaction Index averaged over the past three fiscal years, *MKCON* as the firm's Herfindahl-Hirschman concentration ratio computed using sales revenue by 2-digit SIC code and fiscal year, and *ROA* as the firm's net income before extraordinary items divided by total assets.

3.3 Control Variables

All specifications include controls that capture firm-specific characteristics following prior studies (Kirca *et al*., 2005; Ellis, 2006; Wang and Miao 2015; Sahi *et al*., 2016). Particularly, a number of extraneous factors (see, for example, Narver and Slater, 1990; Slater and Narver, 1994) have been

found to affect the dependent and independent variables examined in this study, and failure to include these variables in our regression analyses could result in biased and inconsistent estimates of the model parameters, primarily due to an omitted variables bias. Hence, including these variables as statistical controls in our regression analyses allow us to more accurately estimate the coefficients of interest. Specifically, we include: the number of years since the firm was first included in Compustat, *AGE*; dividend yield, *DIV*, computed as dividend as a percentage of the current share price; financial leverage as indicated by total liabilities to total assets, *LEV*; an indicator variable, *LIT*, which is equal to one if the firm is in a high litigation industry and zero otherwise; the market value to book value of equity, *MTB*; the average of weekly returns over the fiscal year, *RET*; sales growth computed as the percentage change between fiscal years *t* and *t-1*, *SALEG*; the natural logarithm of market value of equity, *SIZE*; and the number of common shares outstanding at the end of the prior fiscal year, *SHARE*.

When investigating the relation between *MO* and *ROA*, following Narver and Slater (1990), we further include the size of a firm's sales revenues in its principal served market segment in relation to those of its largest competitor, *RSIZE*; and the percentage of total sales accounted for by the four competitors with the largest sales, *SCON*.

4 ECONOMETRIC METHODS & DESCRIPTIVES

We carefully design our econometric approach to tackle any identification issues that may obscure the interpretation of the results. Since firms' market orientation is theorized to be slow changing and rather persistent over time, following prior studies that derive their key variables using textual analysis (Hoberg and Phillips, 2010; Li, 2010c; Li *et al*., 2013; and Hoberg *et al*., 2014), we utilize pooled cross-sectional OLS estimates and GLS random effects (GLS-RE) regressions. This econometric approach, unlike firm fixed effects estimators, can provide valid estimates of parameters that appear to change sluggishly or even display a time-invariant behaviour (Li, 2010a; Loughran and McDonald, 2011; Clark and Linzer, 2015).

In all regressions, we include year and Fama and French's (1997) 48 industry classifications to control for unobserved time- and industry-invariant effects. The standard errors are corrected for firm clustering to control for heterogeneity and potential bias in the estimates that occur when the residuals are correlated across firms.[7] To mitigate the effects of outliers, all continuous variables are winsorized at the 1st and 99th percentiles. Further, all continuous variables have been standardized to have a mean of 0 and standard deviation of 1. Such standardization is useful to avoid the potential detrimental effects of scaling differences and allows us to gauge the variables' economic significance directly. However, our results remain unaltered when using unstandardized variables in the regressions. Finally, we rely on the variance inflation factor (VIF) to detect the presence of multicollinearity among the predictors of all the regression models. Unreported results show that the covariates used in our multivariate regression analysis have a VIF that is in principle much lower than 10, which suggests the absence of any severe multicollinearity issues.

4.1 Descriptive Statistics

The mean (median) number of words contained in the 10-K reports used in our empirical analysis is 38,726 (28,142), with a standard deviation of around 42,275 words. These numbers are comparable to those reported in prior studies that have analyzed firms' 10-Ks (Loughran and McDonald, 2016). Further, Table 3 presents descriptive statistics of the variables used in our study. The mean value of our market orientation variable, *MO*, is 0.0383 per hundred words, and the mean values of its components, *CUST* and *COMP* are 0.0272 and 0.0110, respectively. Interestingly, the predominance of the customer orientation dimension is in line with prior research, which views it as the key component of a market-oriented firm (Siguaw and Diamantopoulos, 1995; Cano *et al.*, 2004; Kirca *et al.*, 2005).

[7] As robustness analysis, we also consider standard errors clustered at the firm-year level as well as the firm-industry-year level. The results with two-way and three-way clustering are reported in Tables A.10 – A.13 of the online appendix. The main findings remain robust and unchanged when using alternative forms of clustering.

Customer satisfaction, *SAT*, and market concentration, *MKCON*, have mean values of 76.3957, and 0.1022, respectively. Finally, our measure of firm performance, *ROA*, has a mean value of 0.0013. These statistics are largely comparable to the values reported in previous studies (Tuli and Bharadwaj, 2009; Rego *et al*., 2013 and Feng *et al*., 2015).

[Insert Table 3 here]

Table 4 reports the mean *MO* across different industries (based on the Fama and French, 1997 industry classification), with Business Services at the top, scoring 0.0655 *MO* words per hundred, and Precious Metals at the bottom, with 0.0065. Interestingly, the Computers, Electronic Equipment, Wholesale and Retail industries have the highest level of *MO*; meanwhile, the Coal, Non-Metallic and Industrial Metal Mining, Petroleum and Natural Gas, and Tobacco Products industries have the lowest. The industry ranking in terms of the level of market orientation is as expected, with more regulated industries ranked lower and industries featuring lower barriers to entry (and therefore intense competition) ranked highest. Note that, although we rank-ordered Table 4 based on the Fama and French industry classification, this is only for broad descriptive purposes; as our measure does not rely on an industry definition. Despite this, Table 4 shows that there is substantial variation in *MO* both across and within industries as indicated by the standard deviation, which is on average greater than half the industry mean value.

[Insert Table 4 here]

4.2 Univariate Analysis

Table 5 tabulates univariate regression results to assess the association between our measure of market orientation, *MO*, and the other main variables. This table is structured as a matrix of regression coefficients, which are obtained by regressing the row-variable against the column-variable, one at a time, after controlling for time and industry fixed-effects.

Regarding the relations between *MO* and its two components, principally we observe positive and highly statistically significant coefficients (p-values<0.01) between *MO* and *CUST*

(coefficient=0.949, R^2=0.92), between *MO* and *COMP* (coefficient=0.452, R^2=0.42), and between *CUST* and *COMP* (coefficient=0.162, R^2=0.27).

Results consistent with expectations are also found for the relationship between *MO* and customer satisfaction, *SAT*, and market concentration, *MKCON*. We find positive and highly statistically significant relations (*p*-values<0.01) between *MO* and *SAT* (coefficient=0.191, R^2=0.24), and between *MO* and *MKCON* (coefficient=0.009, R^2=0.26). Further, we find that *MO* is positively and significantly associated with firms' *ROA* (correlation=0.021, R^2=0.23).

[Insert Table 5 here]

5 VALIDATION TESTS

We present the results of various analyses aimed at ensuring that our *MO* measure reflects the intended construct. First, we note that the univariate results of Table 5 suggest that *MO* is positively related to both *CUST* and *COMP*, and that *CUST* and *COMP* are both positively and significantly related. These relations are consistent with theory, which suggests that the three elements of a market orientation should be positively interrelated (Narver and Slater, 1990).

Next, it has been suggested that a firm's market orientation can persist over time, as a change in orientation takes place slowly (Kohli and Jaworski, 1990; Narver and Slater, 1990). Table 6 presents the mean annual transition probabilities by deciles of market orientation. If the market orientation measure is non-random and indeed a persistent quantity, then we would expect the mean probability of firms remaining in the same decile in the next period to be greater than 10%. We instead observe that firms in the lowest (1st) decile of *MO* in any one year have a 71% chance of remaining in the lowest *MO* decile the following year, while firms in the highest (10th) decile remain in that decile in the following year with a probability of 64%. By and large, the transition probabilities of all diagonal elements are notably much higher than 10%, with the probabilities of the corresponding off-diagonal elements rapidly declining as we move away from the decile. These results indicate that *MO* is indeed persistent over time and lends support to the notion that it resembles the behaviour that a cultural-related

variable should preserve. In the online appendix (Figure A.1) we also provide evidence that the MO measure is typically persistent over time at the firm-level, while the measure also responds to temporal changes in market orientation in some years.

[Insert Table 6 here]

Moving forward, as argued in Section 2.2., if *MO* captures a firm's market orientation, we should detect a positive relation between *MO* and customer satisfaction, *SAT*. To test this, we estimate the following model:

$$SAT_t = \alpha_1 + \alpha_2 MO_t + \alpha_3 AGE_t + \alpha_4 DIV_t + \alpha_5 LEV_t + \alpha_6 LIT_t + \alpha_7 MTB_t + \alpha_8 RET_t + \alpha_9 SALEG_t + \alpha_{10} SIZE_t + \alpha_{11} SHARE_t + \varepsilon_t, \quad (4)$$

where we control for firm-specific characteristics to ensure that the relation between *MO* and *SAT* is not a result of other factors. The coefficient of interest is α_2, which we expect to be positive and statistically significant.

Traditionally, a firm's customer orientation is argued to be the central element of market orientation that is linked to customer satisfaction (Kohli and Jaworski, 1990; Narver and Slater, 1990). This is because customer orientation is viewed as the synthesis of obtaining information about customers' needs and preferences, and taking actions based on this and other forms of customer-related market intelligence. This can be contrasted with competitor orientation, which centres on gathering and assimilating competitor-related market intelligence. Hence, a firm's customer orientation is more likely to drive the relation between *MO* and *SAT* than competitor orientation. This distinction enables us to provide discriminant validity by affirming that our measures of *CUST* and *COMP* are indeed capturing the intended behaviours of *MO*. Accordingly, we estimate the following models:

$$SAT_t = \alpha_1 + \alpha_2 CUST_t + \alpha_3 AGE_t + \alpha_4 DIV_t + \alpha_5 LEV_t + \alpha_6 LIT_t + \alpha_7 MTB_t + \alpha_8 RET_t + \alpha_9 SALEG_t + \alpha_{10} SIZE_t + \alpha_{11} SHARE_t + \varepsilon_t, \quad (5)$$

$$SAT_t = \alpha_1 + \alpha_2 COMP + \alpha_3 AGE_t + \alpha_4 DIV_t + \alpha_5 LEV_t + \alpha_6 LIT_t + \alpha_7 MTB_t + \alpha_8 RET_t + \alpha_9 SALEG_t + \alpha_{10} SIZE_t + \alpha_{11} SHARE_t + \varepsilon_t, \quad (6)$$

and

$$SAT_t = \alpha_1 + \alpha_2 CUST_t + \alpha_3 COMP_t + \alpha_4 AGE_t + \alpha_5 DIV_t + \alpha_6 LEV_t + \alpha_7 LIT_t$$

$$+ \alpha_8 MTB_t + \alpha_9 RET_t + \alpha_{10} SALEG_t + \alpha_{11} SIZE_t + \alpha_{12} SHARE_t + \varepsilon_t, \qquad (7)$$

where we expect a positive and significant α_2 in Eq.'s (5) and (7), while we expect α_3 in Eq. (7) to be statistically indistinguishable from zero. Hence, firms' *CUST* should be the main driver of the positive relation between *MO* and *SAT* (and not *COMP*).

The results of the estimates of Eq.'s (4) to (7) are provided in Table 7, where on model (1) we find strong evidence that the relationship between *MO* and *SAT* is indeed positive and statistically significant (coefficient=0.048, *p*-value<0.01). In model (2), we also observe a positive and statistically significant relation between *CUST* and *SAT* (coefficient=0.049, *p*-value<0.01). We also observe a positive and statistically significant result for the relation between *COMP* and *SAT* (coefficient=0.012, *p*-value<0.01) in model (3), which may reflect the latent common inter-functional coordination between *COMP* and *CUST*. However, the significant relation between *COMP* and *SAT* turns insignificant in the presence of *CUST* (coefficient=0.048, *p*-value<0.01) for Eq. (7) provided in model (4). This suggests that *CUST* is the primary driver of the relationship observed between *MO*. We also provide GLS-RE regressions of Eq.'s (4) to (7) respectively in models (5) to (8). These are consistent with the pooled OLS estimates and lend more empirical support to the construct validity of our measures.

[Insert Table 7 here]

Next, as pointed out by Porter (1980), increased market intensity is revealed through tactics such as increased advertising, aggressive pricing and product introductions. In such situations, close monitoring of competitors' actions should help to maintain and/or enhance a firm's market position. Furthermore, such actions are arguably more important than excessively focusing on customers' needs and wants, since any one of the leading competitors can have a substantial impact on the competitive intensity in the market, while customers have limited market power. In this vein, we investigate whether *MO* is positively related to market concentration, *MKCON*. In addition, we examine whether the existence of a positive relation between *MO* and *MKCON* is primarily driven by *COMP*. Thus, we estimate the following models:

$$MKCON_t = \alpha_1 + \alpha_2 MO_t + \alpha_3 AGE_t + \alpha_4 DIV_t + \alpha_5 LEV_t + \alpha_6 LIT_t + \alpha_7 MTB_t$$

$$+ \alpha_8 RET_t + \alpha_9 SALEG_t + \alpha_{10} SIZE_t + \alpha_{11} SHARE_t + \varepsilon_t, \quad (8)$$

$$MKCON_t = \alpha_1 + \alpha_2 CUST_t + \alpha_3 AGE_t + \alpha_4 DIV_t + \alpha_5 LEV_t + \alpha_6 LIT_t + \alpha_7 MTB_t + \alpha_8 RET_t + \alpha_9 SALEG_t + \alpha_{10} SIZE_t + \alpha_{11} SHARE_t + \varepsilon_t, \quad (9)$$

$$MKCON_t = \alpha_1 + \alpha_2 COMP_t + \alpha_3 AGE_t + \alpha_4 DIV_t + \alpha_5 LEV_t + \alpha_6 LIT_t + \alpha_7 MTB_t + \alpha_8 RET_t + \alpha_9 SALEG_t + \alpha_{10} SIZE_t + \alpha_{11} SHARE_t + \varepsilon_t, \quad (10)$$

and

$$MKCON_t = \alpha_1 + \alpha_2 CUST_t + \alpha_3 COMP_t + \alpha_4 AGE_t + \alpha_5 DIV_t + \alpha_6 LEV_t + \alpha_7 LIT_t + \alpha_8 MTB_t + \alpha_9 RET_t + \alpha_{10} SALEG_t + \alpha_{11} SIZE_t + \alpha_{12} SHARE_t + \varepsilon_t, \quad (11)$$

where the coefficients of interest are α_2 in Eq.'s (8) to (10), and α_2 and α_3 in Eq. (11). Thus, a firm's *MO* should be positively related to *MKCON*; accordingly we expect to observe a positive and statistically significant α_2 in Eq. (8). What is more, if *COMP* is indeed the key driver for the relation between *MO* and *MKCON*, we should observe positive and significant α_2 and α_3 in Eq.'s (10) and (11) respectively.

The estimates of Eq.'s (8) to (11) are provided in Table 8, where we find evidence consistent with our expectations; as in model (1) the relation between *MO* and *MKCON* is positive and statistically significant (coefficient=0.020, *p*-value<0.05). In model (2), we do not obtain significant results for the relation between *CUST* and *MKCON*. Further, model (3) evinces a positive and statistically significant relation between *COMP* and *MKCON* (coefficient=0.011, *p*-value<0.05). Additionally, the coefficient α_3 of *COMP* in model (4) is 0.011 and statistically significant (*p*-value<0.05), while the coefficient α_2 of *CUST* is statistically not significant. This suggests that *COMP* is the main driver for the relationship between *MO* and *MKCON*, as compared to *CUST*. Further, the GLS-RE estimates of Eq.'s (8) to (11), provided in models (5) to (8), lend further credence to the construct validity of our measures.

[Insert Table 8 here]

In a nutshell, the construct validity tests provide strong empirical support that *MO* is a valid measure of market orientation, as it behaves in accordance with theoretical predictions. More importantly, the construct validity of *MO* is shown to be significant in the presence of other

important control variables as employed in previous studies, vindicating that *MO* is not simply a noisy version of other variables.

6 MARKET ORIENTATION AND PERFORMANCE

We report the results of our multivariate analyses aimed at testing the hypotheses presented in Section 2.3. Firstly, we posit H_1, which states that market orientation, *MO*, should be positively related to a firm's performance, proxied by *ROA*. To test this hypothesis, we estimate the following models:

$$\begin{aligned} ROA_t = {} & \alpha_1 + \alpha_2 MO_t + \alpha_3 AGE_t + \alpha_4 DIV_t + \alpha_5 LEV_t + \alpha_6 LIT_t + \alpha_7 MTB_t \\ & + \alpha_8 RET_t + \alpha_9 RSIZE_t + \alpha_{10} SALEC_t + \alpha_{11} SALEG_t + \alpha_{12} SIZE_t \\ & + \alpha_{13} SHARE_t + \varepsilon_t, \end{aligned} \tag{12}$$

$$\begin{aligned} ROA_t = {} & \alpha_1 + \alpha_2 \Delta MO_t + \alpha_3 MO_{t-1} + \alpha_4 AGE_t + \alpha_5 DIV_t + \alpha_6 LEV_t + \alpha_7 LIT_t \\ & + \alpha_8 MTB_t + \alpha_9 RET_t + \alpha_{10} RSIZE_t + \alpha_{11} SALEC_t + \alpha_{12} SALEG_t \\ & + \alpha_{13} SIZE_t + \alpha_{14} SHARE_t + \varepsilon_t, \end{aligned} \tag{13}$$

and

$$\begin{aligned} ROA_t = {} & \alpha_1 + \alpha_2 \Delta MO_t + \alpha_3 \Delta MO_{t-1} + \alpha_4 MO_{t-2} + \alpha_5 AGE_t + \alpha_6 DIV_t + \alpha_7 LEV_t \\ & + \alpha_8 LIT_t + \alpha_9 MTB_t + \alpha_{10} RET_t + \alpha_{11} RSIZE_t + \alpha_{12} SALEC_t \\ & + \alpha_{13} SALEG_t + \alpha_{14} SIZE_t + \alpha_{15} SHARE_t + \varepsilon_t, \end{aligned} \tag{14}$$

where in addition to the previously included control variables, we also include *RSIZE* and *SCON*. As *MO* is a persistent quantity, we evaluate potential long-run relationships by including the lagged and contemporaneous levels and differences of *MO*. In Eq.'s (12) to (14), the main coefficients of interest are respectively α_2, α_3 and α_4, and in each case, we expect them to be positive and statistically significant.

The estimates of Eq.'s (12) to (14) are shown in Table 9. Consistent with H_1, in model (1) we find that the coefficient α_2 in Eq. (12) is equal to 0.037 and statistically significant (p-value<0.01). As shown in model (2), the coefficients ΔMO_t and MO_{t-1} are both positive and statistically significant, with coefficients of 0.019 (p-value<0.01) and 0.040 (p-value<0.01), respectively. Similarly, in model (3) the coefficients of ΔMO_t and ΔMO_{t-1} are positive and statistically significant, with coefficients of

0.022 (p-value<0.01) and 0.037 (p-value<0.01), respectively. What is more, the coefficient of 0.033 (p-value<0.01) for MO_{t-2} suggests a strong positive and statistically significant relationship between market orientation and firms' performance two years into the future. In addition, the GLS-RE regressions of Eq.'s (12) to (14) are provided in models (4) to (6) and these are consistent with the pooled OLS estimates.[8]

[Insert Table 9 here]

Finally, it has been argued that the relation between market orientation and operating performance should be more pronounced when markets are highly competitive. In this vein, we posit H_2, which states that the greater a firm's competitive intensity, the stronger the relation between market orientation and *ROA*. To test this hypothesis, we estimate the following model:

$$\begin{aligned} ROA_t = {} & \alpha_1 + \alpha_2 MO_t + \alpha_3 MKINT_t + \alpha_4 MO_t \times MKINT_t + \alpha_5 AGE_t + \alpha_6 DIV_t + \alpha_7 LEV_t \\ & + \alpha_8 LIT_t + \alpha_9 MTB_t + \alpha_{10} RET_t + \alpha_{11} RSIZE_t + \alpha_{12} SALEC_t + \alpha_{13} SALEG_t \\ & + \alpha_{14} SIZE_t + \alpha_{15} SHARE_t + \varepsilon_t, \end{aligned} \quad (15)$$

where *MKINT* represents alternative measures of a firm's market competitive intensity. We utilize measures that capture different dimensions of market intensity, namely *HIGH_COUNT* an indicator variable taking the value of one when the firm operates in an industry with an above median number of firms, and zero otherwise; *LOW_PPE*, an indicator variable taking the value of one when the firm operates in an industry with below median gross property plant and equipment, and zero otherwise; and *LOW_TARIFF* an indicator variable taking the value of one when the firm's industry has below median tariff levels, and zero otherwise. The coefficient of interest is α_4, which is expected to be positive and statistically significant.

The estimates of Eq. (15) are presented in Table 10. Consistent with H_2, we find positive and statistically significant coefficients for the interaction term $MO_t \times MKINT_t$, where *MKINT* is *HIGH_COUNT* in model (1), *LOW_PPE* in model (2), and *LOW_TARIFF* in model (3). Specifically,

[8] As additional robustness analysis, we also control for other textual measures derived from 10-K filings, including corporate culture measures (Fiordelisi and Ricci, 2014), and positive and negative tone in the 10-K filings. The findings remain unaltered (see Table A.1 of the online appendix for results).

in model (1) we observe a coefficient on the interaction term of 0.057 (p-value<0.01), while in models (2) and (3) this is 0.011 (p-value<0.1) and 0.044 (p-value<0.1), respectively. The GLS-RE estimates provided in columns (4) to (6) are consistent with the pooled OLS estimates.

[Insert Table 10 here]

7 CONCLUSION

In this paper, we introduce a new method to measuring market orientation, which is based on textual analysis of management's disclosures in firms' 10-K filings. We validate the measures of market orientation and its main components, customer orientation and competitor orientation, by demonstrating that they empirically relate to other firm characteristics in a manner that is consistent with the theory. Following this, we conduct a large-scale longitudinal analysis investigating how a firm's market orientation is related to its operating performance. We document robust evidence that a firm's market orientation is positively related to a firm's level of operating performance up to two years ahead in time. In addition, we find that the relationship between market orientation and a firm's operating performance is more pronounced when firms operate in industries that are highly competitive.

Notwithstanding our meticulous measurement approach of market orientation, a bag-of-words methodology could suffer from the potential limitation of ignoring the broad context of texts processed. For example, the methodology can be exposed to having the potential to misclassify words and taking words out of context from their intended meaning. Further, it is conceivable that managers may try to narratively over-emphasise certain attributes in disclosures to influence public perceptions and the bag-of-words methodology may suffer from capturing such deliberate overstatements. Additionally, prior studies examining the information content of 10-K filings have suggested that such firm disclosures are susceptible to impression management and boilerplate discussions (Li, 2010a; Loughran and McDonald, 2016). By carefully considering core and contextual word pairs in the measurement approach and accounting for tonal classifications in the development of the dictionary, certain of the above limitations are alleviated, although they can never be completely precluded from the estimated

measure. Nevertheless, we successfully demonstrate that the textual analysis of firms' 10-K filings represents an efficient way of capturing market orientation. What is more, this method allows us to exploit a large corpus of publicly available archival data for firms and thereby overcome the severe data limitation problems that are associated with alternative research designs (e.g. surveys). Future methodological research can extend the approach by considering linguistic indicators of the psychological processes conveying specific impressions and emotional states. Such measurement approaches can control for management attempts to influence reader perceptions of the 10-K reports.

Furthermore, our study should be viewed as an important first step in the large-scale longitudinal temporal base analysis of the relationship between firms' market orientation and operating performance and offers several exciting possibilities for future studies. First, it is important to note that readers should be cautious when generalising the results to different contexts since our research is empirically supported for US publicly listed non-financial firms. As a result, this research stream would benefit from future empirical studies applying the textual methodology to disclosure data in other countries.

Nevertheless, our results have important implications of interest to academics, strategists and the wider business community, because the significant effect of market orientation on a firm's level of operating performance hinges on the way firms are governed. As such, the methodological innovation in the study opens several avenues for future research. Future studies can use the new measure to investigate important firm policies and how such policies affect future economic outcomes. For example, do market-oriented firms have specific governance and organizational structures/practices (board characteristics, executive compensation) that enable them to be successful? Being market-oriented, do such firms' shareholders benefit more in the long run? Also, future research can delve deeper into studying specific industries with high market orientation to understand the factors that drive operating philosophies as detailed in their corporate culture. Depending on certain environmental factors, some firms may need to be more customer-oriented, while others may need to be more competitor-oriented in order to achieve superior financial performance in the long run. It will also be interesting to study what drives the management's decision to focus on one or both. In addition, future

research should focus on triangulating our measure of market orientation with other measures. Finally, in this paper we assessed operating performance using firms' financial data, while there is evidence that performance is a much broader construct that includes extra-role dimensions. Future work could examine a broader notion of firm performance and firm value.

APPENDIX A
Narver and Slater's (1990) MKTOR Scale

This appendix reports Narver and Slater's (1990) MKTOR scale, which is a questionnaire that captures respondents' level of agreement to the statements listed below, measured on a 7-point Likert scale. The MKTOR statements are designed to capture the three components of market orientation: customer orientation (items 1 to 6), competitor orientation (items 7 to 10), and inter-functional coordination (items 11 to 14). The MKTOR items are listed as follows:

1. Our business objectives are driven by customer satisfaction.
2. We monitor our level of commitment and orientation to serving customers' needs.
3. Our strategy for competitive advantage is based on our understanding of customer needs.
4. Our business strategies are driven by our beliefs about how we can create greater value for customers.
5. We measure customer satisfaction systematically and frequently.
6. We give close attention to after-sales service.
7. Our salespeople share information within our business concerning competitors' strategies.
8. We respond to competitive actions that threaten us.
9. We target customers and customer groups where we have, or can develop, a competitive advantage.
10. The top management team regularly discusses competitors' strengths and strategies.
11. Our top managers from every function visit our current and prospective customers.
12. We communicate information about our successful and unsuccessful customer experiences across all business functions.
13. All of our business functions (e.g. marketing/sales, manufacturing, R&D, finance/accounting, etc.) are integrated in serving the needs of our target markets.
14. All of our managers understand how everyone in our company can contribute to creating customer value.

APPENDIX B
Excerpts from 10-K Filings

This appendix presents selected extracts from firms' 10-K reports used to construct our measure of market orientation. The core word and contextual word pairs are highlighted in bold.

Name	CIK	Fiscal year	Excerpts from 10-Ks
IBM	51143	1994	"...upgrading of facilities is essential to maintain technological leadership, improve productivity, and meet **customer demand**..."
Intel	50863	1994	"...it continues to be Intel's strategy to maintain its **competitive advantage** through the development and marketing of advanced products which provide greater functionality..."
GE	40545	2000	"...serving a range of **customers** with special **needs**..."
IBM	51143	2000	"...the global network and the actions taken by the company in 1999 to improve its **competitiveness** and to **strengthen** further the company's overall business portfolio..."
Intel	50863	2000	"...long-term growth by delivering new products and services, creating new opportunities for partners, improving **customer satisfaction**..."
Apple	320193	2009	"...the company is currently taking and will continue to take steps to **respond** to the **competitive** pressures being placed on its personal computer sales as a result of the recent innovations..."
GE	40545	2009	"...we **serve customers** in more than 100 countries and employ more than 300,000 people worldwide..."
IBM	51143	2009	"...continues to invest significantly in its rapidly growing services business, principally in the management of **customers**' **information**..."
Intel	50863	2009	"...navigate this environment, by improving our products and processes faster than our competitors, anticipating changing **customer requirements**, developing and launching new products and platforms..."
Apple	320193	2015	"...to remain competitive and stimulate **customer demand**, the company must successfully manage frequent product..."
Exxon / ExxonMobil	34088	2015	"...ExxonMobil sustained its **competitive advantage** through continued operational excellence, investment and cost discipline, a balanced portfolio of products, integration..."
GE	40545	2015	"...acquisitions and restructuring intellectual and other risks, including the demand for our products and services, **competitive threats**, technology and product innovation, and public policy..."
Google/ Alphabet	1288776	2015	"...innovation and investment, as well as the accurate anticipation of technology, market trends, and **consumer needs**..."
IBM	51143	2015	"...we are excited about the prospects for growth and **value** for our **clients** and for IBM and we look forward to helping our clients transform their businesses..."
Intel	50863	2015	"...in developing our assets and execution in key objectives are intended to help **strengthen** our **competitive** position as we enter and expand into adjacent market segments..."
Microsoft	789019	2015	"...we believe Windows competes effectively by giving **customers** choice, **value**, flexibility, security, an easy-to-use interface, compatibility with a broad range of hardware..."

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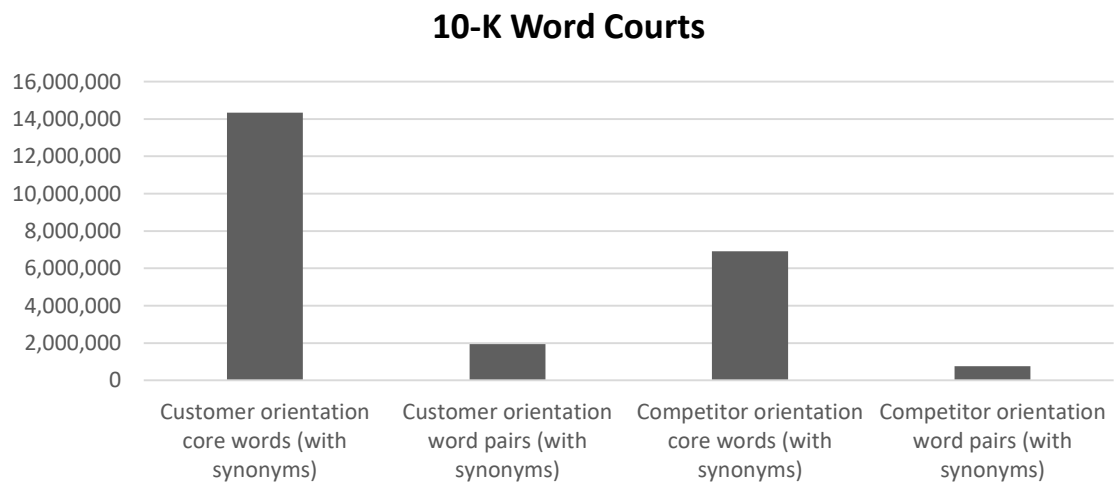
Figure 1
Frequency and Tonal Classifications of Market Orientation Words

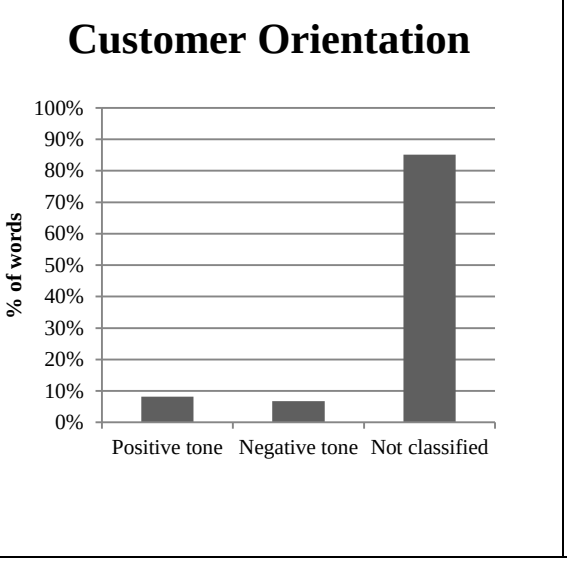
This graph presents in Panel A the total 10-K frequencies for the occurrence of (i) customer orientation core words, (ii) customer orientation core words that appear along with customer-oriented contextual words, (iii) competitor orientation core words, and (iv) competitor orientation core words that appear along with competitor-oriented contextual words. Panel B highlights the percentage of customer orientation and competitor orientation words (core and contextual) classified into the positive and negative tonal classes identified in Loughran and McDonald (2011).

Panel A. Frequency of market orientation words.



	Word count
Customer orientation core words (with synonyms)	14,347,013
Customer orientation word pairs (with synonyms)	1,939,634
Competitor orientation core words (with synonyms)	6,909,214
Competitor orientation word pairs (with synonyms)	759,851

Panel B. Tonal classification of market orientation words.



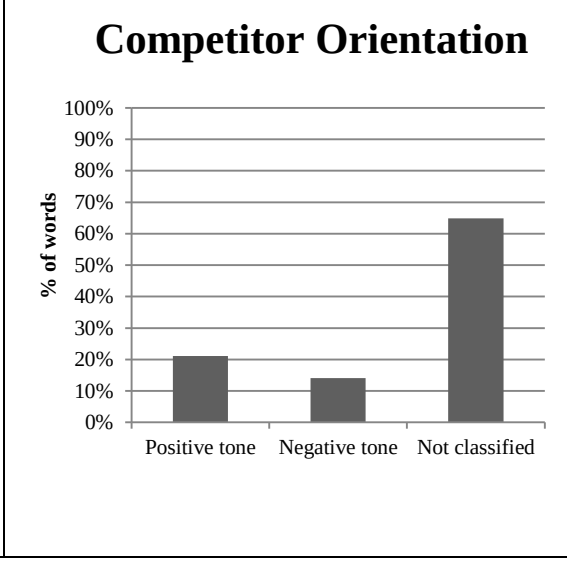


Table 1
Bag of Words

This table reports the core and contextual bag of words used to measure market orientation and its components from firms' 10-K filings. Words in bold are the recurring words taken from the MKTOR, while the other words are their corresponding synonyms from Princeton University WorldNet lexical database and Harvard IV-4 psychosocial dictionary. In the spirit of Loughran and McDonald (2011), infrequent words pairs occurring below the 0.1% frequency in all of the sample of 10-K filings are filtered out to reduce noise.

	Market Orientation	
	Customer Orientation	**Competitor Orientation**
Core words:	**customer***, consumer*, client*, buyer*, guest*, purchaser*, patient*, patron*, policyholder*, subscriber*, shopper*	**compet***, challeng*, contend*, rival*
Contextual words:	**satisf***, fulfill*, content*, comfort* **commit*,** faith*, cooperat*, dedicat*, devot* **need***, requir*, necess*, requisite*, essential*, demand*, condition* **servic***, work*, help*, assist*, aid*, car* **target***, guid*, referenc*, aim*, objective*, goal* **understand***, sens*, translat*, interpret*, solv*, appreciate*, perceive* **valu***, ideal* **visit***, call*, meet*, engage*, experience* **inform***, dat*, knowledge, fact*, news, detail* **communica***, channel*, discuss*, examin*, talk*, express*	**action***, act*, achiev*, perform* **threat*** **respond***, react*, counter* **advantage***, edge**,** favor*, superior*, preference*, gain* **develop***, build*, evolve*, improve* **strength***, power*, strong*, robust*, forc* **strateg***, program*, plan* **inform***, dat*, knowledge, fact*, news, detail* **communica***, channel*, discuss*, examin*, talk*, express*

Table 2
Definitions of Variables

	Symbol		Definitions
Main variables			
Market orientation	*MO*	=	the firm's market orientation;
Customer orientation	*CUST*	=	the firm's customer orientation;
Competitor orientation	*COMP*	=	the firm's competitor orientation;
Customer satisfaction	*SAT*	=	the firm's industry American Customer Satisfaction Index (ACSI) averaged over the past three fiscal years, based on Fama and French 48 industry classification;
Market concentration	*MKCON*	=	the Herfindahl-Hirschman concentration ratio computed using the firm's sales revenue [Compustat item: REVT] by 2-digit Standard Industrial classification (SIC) code and fiscal year;
Return on assets	*ROA*	=	return on assets defined as income before extraordinary items [Compustat item: IB] divided by total assets [Compustat item: AT];
Control variables			
Age of the firm	*AGE*	=	the number of years since the firm first appears in Compustat;
Dividend yield	*DIV*	=	annual dividend yield [Compustat items: (DVC / CSHO) / PRCC_F];
Leverage	*LEV*	=	long-term debt [Compustat item: DLTT] by total assets [Compustat item: AT];
Litigation	*LIT*	=	an indicator variable taking the value of one when the firm operates in a high litigation industry (pharmaceutical/ biotechnology SIC codes 2833-2836, 8731-8734; computer SIC codes 3570-3577, 7370-7374; electronics SIC codes 3600-3674 and retail SIC codes 5200-5961), and zero otherwise;
Market to book	*MTB*	=	market to book value of equity at the end of the fiscal year [Compustat items: CSHO × PRCC_F / (PSTK + CSTK)];
Relative size of sales	*RSIZE*	=	the firm's sales revenues [Compustat item: REVT] divided by those of its largest competitor in its industry, based on Fama and French 48 industry classification;
Returns	*RET*	=	average weekly stock returns over the fiscal year;
Sales concentration	*SCON*	=	percentage of total sales [Compustat item: REVT] accounted for by the firm's four largest competitors in the same industry, based on Fama and French 48 industry classification;
Sales growth	*SALEG*	=	sales for the fiscal year divided by sales for the prior fiscal year [Compustat item: REVT];
Size of the firms	*SIZE*	=	the natural logarithm of market value of equity [Compustat items: CSHO × PRCC_F] at the end of the fiscal year;

Shares outstanding	*SHARE*	=	the number of common shares outstanding [Compustat item: CSHO] at the end of the prior fiscal year;
Other variables			
Above median number of firms in industry	*HIGH_COUNT*	=	an indicator variable taking the value of one when the firm operates in an industry with an above median number of firms, and zero otherwise;
Below median industry gross PPE	*LOW_PPE*	=	an indicator variable taking the value of one when the firm operates in an industry with below median gross property plant and equipment [Compustat item: PPEGT], and zero otherwise; and
Below median industry tariffs	*LOW_TARIFF*	=	an indicator variable taking the value of one when the firms' industry has below median tariff levels, and zero otherwise.

Table 3
Descriptive Statistics

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 2017.

Variable	Mean	Stdev.	25th percentile	Median	75th percentile
MO	0.0383	0.0355	0.0138	0.0286	0.0509
CUST	0.0272	0.0313	0.0069	0.0172	0.0355
COMP	0.0110	0.0110	0.0028	0.0079	0.0159
SAT	76.3957	4.2996	73.0000	76.0000	80.0000
MKCON	0.1022	0.1074	0.0494	0.0627	0.1167
ROA	0.0013	0.1808	-0.0078	0.0421	0.0830
AGE	2.9157	0.7749	2.4849	3.0445	3.4340
DIV	0.0069	0.0166	0.0000	0.0000	0.0063
LEV	0.8963	1.6111	0.1561	0.3956	0.9254
LIT	0.3889	0.4875	0.0000	0.0000	1.0000
MTB	3.0047	4.2586	1.1839	2.0245	3.5585
RSIZE	0.0088	0.0195	0.0003	0.0015	0.0068
RET	0.1503	0.7293	-0.2700	0.0331	0.3719
SCON	0.6725	0.1169	0.6411	0.7099	0.7518
SALEG	1.1802	0.6456	0.9670	1.0813	1.2384
SIZE	5.6651	2.0601	4.1384	5.6184	7.0649
SHARE	72.0751	168.4277	10.4160	24.766	57.8380

Table 4
Market Orientation by Fama and French Industry Classifications

This table presents the market orientation industry mean, median, standard deviation and number of firms.

Industry Classifications	Mean	Median	Stdev.	#Firms
Business Services	0.0655	0.0511	0.0546	756
Computers	0.0571	0.0457	0.0504	259
Electronic Equipment	0.0452	0.0398	0.0323	317
Wholesale	0.0375	0.0277	0.0352	217
Retail	0.0362	0.0284	0.0317	301
Apparel	0.0357	0.0312	0.0272	73
Printing and Publishing	0.0356	0.0208	0.0479	37
Measuring and Control Equipment	0.0328	0.0281	0.0245	127
Pharmaceutical Products	0.0302	0.0259	0.0303	336
Recreation	0.0297	0.0241	0.0252	53
Personal Services	0.029	0.019	0.0333	63
Consumer Goods	0.0289	0.0224	0.0264	79
Electrical Equipment	0.0289	0.0256	0.0209	87
Machinery	0.0274	0.022	0.0241	173
Business Supplies	0.0271	0.0208	0.032	70
Construction	0.0265	0.0201	0.0309	65
Textiles	0.0259	0.0222	0.0211	28
Automobiles and Trucks	0.0256	0.0205	0.022	83
Almost Nothing	0.0252	0.0175	0.0284	59
Candy & Soda	0.0251	0.0209	0.0207	16
Food Products	0.025	0.0194	0.0223	95
Restaurants, Hotels, Motels	0.0243	0.0183	0.0228	108
Rubber and Plastic Products	0.024	0.019	0.0199	51
Agriculture	0.0229	0.0186	0.0204	15
Aircraft	0.0228	0.0183	0.0181	21
Beer & Liquor	0.0222	0.0185	0.0184	20
Construction Materials	0.0221	0.016	0.0239	110
Chemicals	0.0214	0.0173	0.018	102
Fabricated Products	0.0211	0.0165	0.0191	17
Shipping Containers	0.0207	0.0162	0.017	14
Defense	0.0206	0.016	0.0175	11
Steel Works Etc.	0.0202	0.0169	0.0166	66
Entertainment	0.0196	0.0134	0.0244	93
Shipbuilding, Railroad Equipment	0.0188	0.014	0.0162	13
Coal	0.0155	0.0111	0.0195	11
Non-Metallic and Industrial Metal Mining	0.0145	0.0067	0.0249	14
Petroleum and Natural Gas	0.0136	0.009	0.0163	220
Tobacco Products	0.0128	0.0094	0.0109	6
Precious Metals	0.0065	0.0022	0.0127	18
Total				*4,204*

Table 5
Univariate Analysis

This table tabulates univariate regression results to assess the association between our measure of market orientation, MO, and the other main variables considered in the analysis. This table is structured as a matrix of regression coefficients, which are obtained by regressing the row-variable against the column-variable, one at a time, after controlling for time and Fama and French's (1997) 48 industry fixed-effects. The symbol "*" represents significance at the 10 percent level, "**" significance at the 5 percent level, and "***" significance at the 1 percent level.

	MO	*CUST*	*COMP*	*SAT*	*MKCON*	*ROA*	*AGE*	*DIV*
CUST	0.949***							
COMP	0.452***	0.162***						
SAT	0.191***	0.192***	0.055***					
MKCON	0.009***	-0.015*	0.015***	-0.044***				
ROA	0.021***	0.034***	-0.032***	-0.003	-0.005			
AGE	-0.102***	-0.071***	-0.124***	0.024***	0.005	0.130***		
DIV	-0.022***	-0.015***	-0.027***	0.011***	0.012***	0.043***	0.052***	
LEV	-0.018***	-0.015***	-0.017***	0.006	0.002	-0.367***	0.000	0.006
LIT	0.045***	0.003	0.135***	-0.004	-0.097***	-0.084***	-0.155***	-0.039***
MTB	0.003	0.000	0.012***	-0.002	0.004	0.005	0.007	-0.001
RSIZE	-0.045***	-0.031***	-0.058***	0.005	0.002	0.050***	0.245***	0.022***
RET	0.009**	0.003	0.021***	-0.008**	0.002	0.088***	-0.018***	-0.050***
SCON	0.024**	0.025**	0.007	-0.200***	-0.240***	-0.013	-0.040***	-0.014
SALEG	-0.003	-0.004	0.000	-0.005	-0.002	-0.011**	-0.009**	-0.002
SIZE	-0.009**	0.006	-0.045***	0.028***	0.002	0.206***	0.257***	0.011**
SHARE	-0.017***	-0.012***	-0.020***	0.005	0.008**	0.051***	0.152***	0.017***

	LEV	*LIT*	*MTB*	*RSIZE*	*RET*	*SCON*	*SALEG*	*SIZE*
LIT	-0.049***							
MTB	-0.004	0.002						
RSIZE	0.013**	-0.001	0.001					
RET	-0.039***	0.010***	0.025***	-0.014***				
SCON	0.01	0.024***	-0.009	-0.249***	-0.028**			
SALEG	-0.001	0.002	-0.001	-0.002	0.004	0.001		
SIZE	-0.077***	0.021***	0.022***	0.360***	0.095***	0.005***	0.000	
SHARE	-0.003	0.020***	0.005	0.268***	-0.020***	0.007***	-0.003	0.397***

Table 6
Market Orientation Transition Matrix

This table reports the mean annual transition matrix between current and future period deciles of market orientation. The diagonals are presented in bold figures.

		MO_{t+1}									
		1	2	3	4	5	6	7	8	9	10
MO_t	Low 1	**0.7072**	0.0967	0.0549	0.0354	0.0282	0.0208	0.0169	0.0147	0.0138	0.0114
	2	0.1081	**0.4844**	0.1793	0.0958	0.0538	0.0333	0.0199	0.0125	0.009	0.0039
	3	0.0527	0.1884	**0.3388**	0.1709	0.1004	0.0628	0.0398	0.0264	0.014	0.0059
	4	0.0337	0.0923	0.202	**0.2802**	0.1647	0.1003	0.0598	0.0393	0.0188	0.009
	5	0.024	0.0495	0.1066	0.1917	**0.2484**	0.1633	0.1061	0.0617	0.035	0.0136
	6	0.0157	0.0279	0.0634	0.1027	0.1895	**0.2602**	0.1687	0.098	0.0533	0.0206
	7	0.0117	0.017	0.0402	0.0708	0.113	0.1911	**0.2609**	0.1759	0.0866	0.0326
	8	0.0108	0.0127	0.0248	0.038	0.0643	0.1016	0.1996	**0.3059**	0.1832	0.0591
	9	0.0088	0.0079	0.0126	0.0233	0.0358	0.0554	0.0964	0.2069	**0.383**	0.1698
	High 10	0.0072	0.0051	0.006	0.0115	0.015	0.0216	0.0379	0.0616	0.1959	**0.6382**

Table 7
OLS and GLS-Random Effects Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Customer Satisfaction

This table reports OLS and GLS-RE estimates for the relations between market orientation, customer orientation, competitor orientation and customer satisfaction. The OLS estimates are shown in columns (1) - (4), while columns (5) - (8) report the GLS random effects regression results. The dependent variable *SAT* is the firm's industry American Customer Satisfaction Index (ACSI) averaged over the past three fiscal years. The value of *MO* is a firm's market orientation estimated from the firm's annual 10-K filings. The variables *CUST* and *COMP* represent the firm's customer orientation and competitor orientation estimated using the firm's annual 10-K reports. The variable *AGE* denotes the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is a firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of the firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	SAT_t							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.048***				0.062***			
	(7.61)				(8.84)			
$CUST_t$		0.049***		0.048***		0.069***		0.069***
		(7.24)		(7.02)		(9.16)		(8.92)
$COMP_t$			0.012***	0.007			0.011*	0.001
			(2.87)	(1.59)			(1.89)	(0.13)
AGE_t	0.046***	0.045***	0.043***	0.046***	0.052***	0.052***	0.049***	0.052***
	(8.85)	(8.72)	(8.28)	(8.81)	(8.92)	(8.81)	(8.34)	(8.81)
DIV_t	0.002	0.002	0.001	0.002	0.018***	0.018***	0.017***	0.018***
	(0.47)	(0.44)	(0.14)	(0.47)	(4.13)	(4.15)	(3.92)	(4.15)
LEV_t	0.005	0.005	0.003	0.005	0.007	0.006	0.005	0.006
	(1.30)	(1.17)	(0.78)	(1.24)	(1.54)	(1.49)	(1.24)	(1.49)
LIT_t	0.004	0.004	0.012	0.004	0	0.001	0.013	0.001
	(0.18)	(0.22)	(0.58)	(0.18)	(0.02)	(0.03)	(0.54)	(0.03)
MTB_t	-0.006	-0.006	-0.005	-0.006	-0.006*	-0.006*	-0.006	-0.006*
	(1.55)	(1.52)	(1.36)	(1.54)	(1.74)	(1.69)	(1.60)	(1.69)
RET_t	-0.012***	-0.012***	-0.012***	-0.012***	-0.009***	-0.009***	-0.010***	-0.009***
	(3.72)	(3.73)	(3.74)	(3.73)	(2.96)	(2.93)	(3.06)	(2.93)
$SALEG_t$	-0.015***	-0.015***	-0.016***	-0.015***	-0.015***	-0.014***	-0.016***	-0.014***
	(4.57)	(4.52)	(4.80)	(4.54)	(5.09)	(5.04)	(5.36)	(5.04)
$SIZE_t$	0.002	0.002	0.005	0.002	-0.023**	-0.023**	-0.018	-0.023**

	(0.28)	(0.23)	(0.63)	(0.23)	(2.02)	(2.09)	(1.58)	(2.09)
$SHARE_t$	-0.023**	-0.024**	-0.025**	-0.023**	-0.024	-0.024	-0.026	-0.024
	(2.14)	(2.14)	(2.26)	(2.14)	(1.50)	(1.51)	(1.59)	(1.51)
R^2	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
N	21,275	21,275	21,275	21,275	21,275	21,275	21,275	21,275

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

Table 8
OLS and GLS-Random Effects Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Market Concentration

This table reports OLS and GLS-RE estimates for the relations between market orientation, customer orientation, competitor orientation and market concentration. The OLS estimates are shown in columns (1) - (4), while columns (5) - (8) present the GLS-RE regression results. The dependent variable *MKCOM* is the Herfindahl-Hirschman concentration ratio based on a firm's sales revenue by 2-digit SIC code and fiscal year. The variable *MO* is a firm's market orientation estimated from the firm's annual 10-Ks, *CUST* represents the firm's customer orientation computed from the firm's annual10-Ks, and *COMP* is the firm's competitor orientation estimated using the firm's annual 10-Ks. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of the firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are provided in parentheses.

	$MKCON_t$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.020**				0.016*			
	(2.33)				(1.78)			
$CUST_t$		0.004		0.002		-0.006		-0.007*
		(0.57)		(0.33)		(1.56)		(1.82)
$COMP_t$			0.011**	0.011**			0.015*	0.013*
			(2.03)	(1.97)			(1.86)	(1.85)
AGE_t	-0.006	0.004	0.005	0.005	0.004	0.004	0.005	0.004
	(0.76)	(0.50)	(0.62)	(0.64)	(0.70)	(0.69)	(0.78)	(0.74)
DIV_t	0.006	0.004	0.005	0.005	0.004	0.004	0.004	0.004
	(0.90)	(0.66)	(0.71)	(0.72)	(1.38)	(1.38)	(1.37)	(1.37)
LEV_t	0.008	0.005	0.006	0.006	-0.001	-0.001	-0.001	-0.001
	(0.89)	(0.66)	(0.71)	(0.73)	(0.33)	(0.33)	(0.30)	(0.31)
LIT_t	-0.266***	-0.197***	-0.200***	-0.200***	-0.148***	-0.148***	-0.149***	-0.149***
	(10.34)	(8.36)	(8.43)	(8.43)	(4.30)	(4.30)	(4.34)	(4.34)
MTB_t	0.001	0.003	0.002	0.002	0.003	0.003	0.003	0.003
	(0.15)	(0.52)	(0.47)	(0.48)	(1.09)	(1.08)	(1.08)	(1.06)
RET_t	-0.002	0.003	0.003	0.003	0.007***	0.007***	0.007***	0.007***
	(0.77)	(0.92)	(0.89)	(0.89)	(4.79)	(4.78)	(4.79)	(4.76)
$SALEG_t$	0.001	0.005	0.004	0.004	0.007***	0.007***	0.007***	0.007***
	(0.23)	(1.49)	(1.42)	(1.44)	(4.07)	(4.07)	(4.05)	(4.06)
$SIZE_t$	-0.01	-0.013	-0.013	-0.013	-0.031***	-0.031***	-0.031***	-0.031***

	(0.96)	(1.25)	(1.21)	(1.22)	(3.04)	(3.02)	(3.07)	(3.03)
$SHARE_t$	0.036**	0.034*	0.034*	0.034*	0.01	0.009	0.01	0.009
	(1.97)	(1.87)	(1.87)	(1.87)	(0.90)	(0.90)	(0.91)	(0.90)
R^2	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.57
N	58,595	58,595	58,595	58,595	58,595	58,595	58,595	58,595

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

Table 9
OLS and GLS-Random Effects Regression Estimates of Market Orientation on Firms' Performance

This table reports OLS and GLS-RE estimates for the relations between market orientation and firms' operating performance. The OLS estimates are shown in columns (1) - (3), while columns (4) - (6) present the GLS-RE regression results. The dependent variable *ROA* is a firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is the firm's market orientation estimated from the firm's annual10-Ks, and *ΔMO* represents the change in market orientation over the fiscal year. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of the firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are provided in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.037***			0.019***		
	(5.16)			(3.08)		
ΔMO_t		0.019***	0.022***		0.013***	0.012***
		(4.41)	(4.73)		(3.41)	(3.03)
MO_{t-1}		0.040***			0.019**	
		(4.76)			(2.27)	
ΔMO_{t-1}			0.037***			0.015***
			(6.64)			(2.86)
MO_{t-2}			0.033***			0.002
			(3.57)			(0.15)
AGE_t	0.113***	0.115***	0.122***	0.101***	0.102***	0.108***
	(13.87)	(13.75)	(13.03)	(10.11)	(10.00)	(8.90)
DIV_t	0.053***	0.053***	0.053***	0.019***	0.019***	0.017***
	(9.66)	(9.65)	(9.27)	(4.03)	(4.00)	(3.52)
LEV_t	-0.049***	-0.048***	-0.049***	-0.033***	-0.032***	-0.035***
	(8.67)	(8.33)	(8.20)	(5.73)	(5.42)	(5.77)
LIT_t	-0.174***	-0.176***	-0.163***	-0.307***	-0.309***	-0.296***
	(5.92)	(5.86)	(5.15)	(8.65)	(8.53)	(7.61)
MTB_t	-0.117***	-0.114***	-0.108***	-0.073***	-0.072***	-0.068***
	(8.54)	(8.27)	(7.42)	(7.32)	(7.16)	(6.42)
RET_t	0.099***	0.097***	0.087***	0.060***	0.058***	0.051***
	(16.00)	(15.28)	(12.98)	(13.08)	(12.40)	(10.45)
$RSIZE_t$	-0.082***	-0.082***	-0.078***	-0.065***	-0.065***	-0.061***

	(9.54)	(9.40)	(8.64)	(7.21)	(7.12)	(6.45)
$SCON_t$	-0.021*	-0.016	-0.009	-0.014	-0.009	0.001
	(1.80)	(1.34)	(0.69)	(1.28)	(0.78)	(0.06)
$SALEG_t$	-0.019*	-0.020*	0.015	0.051***	0.051***	0.083***
	(1.91)	(1.91)	(1.15)	(5.67)	(5.46)	(7.23)
$SIZE_t$	0.301***	0.305***	0.299***	0.453***	0.458***	0.446***
	(24.43)	(24.27)	(22.91)	(29.20)	(29.01)	(26.54)
$SHARE_t$	-0.068***	-0.070***	-0.069***	-0.089***	-0.091***	-0.089***
	(5.85)	(5.98)	(5.84)	(7.50)	(7.49)	(6.92)
R^2	0.23	0.23	0.23	0.21	0.21	0.21
N	45,654	44,111	39,335	45,654	44,111	39,335

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

Table 10

OLS and GLS-Random Effects Regression Estimates of Market Orientation on Firms' Performance as Moderated by the Intensity of Firms' Market

This table presents OLS and GLS-RE estimates for the role played by competition intensity in the relationship between market orientation and firms' operating performance. The OLS estimates are shown in columns (1) - (3), while columns (4) - (6) present the GLS-RE regression results. The dependent variable *ROA* is a firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is the firm's market orientation estimated from the firm's annual 10-K reports. The variable *HIGH _COUNT* is an indicator that is equal to one if the firm is in an industry with an above median number of firms, and zero otherwise. The variable *LOW_PPE* is equal to one if the firm is in an industry with below median gross property plant and equipment, and zero otherwise. The variable *LOW_TARIFF* is equal to one if the firm is in an industry with below median tariff rates, and zero otherwise. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of the firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are provided in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.004	0.032***	-0.038*	-0.006	0.003	-0.030**
	(0.49)	(4.82)	(1.87)	(0.80)	(0.55)	(2.07)
HIGH_COUNT	0.030*			0.030**		
	(1.91)			(2.14)		
$MO_t \times HIGH\_COUNT$	0.057***			0.047***		
	(5.08)			(4.95)		
LOW_PPE		-0.073***			0.012	
		(3.50)			(0.65)	
$MO_t \times LOW\_PPE$		0.011*			0.032***	
		(1.85)			(2.79)	
LOW_TARIFF			-0.092***			-0.079***
			(3.56)			(3.74)
$MO_t \times LOW\_TARIFF$			0.044*			0.044*
			(1.77)			(1.94)
AGE_t	0.113***	0.110***	0.150***	0.101***	0.102***	0.139***
	(13.86)	(13.52)	(9.94)	(10.11)	(10.24)	(7.23)
DIV_t	0.052***	0.052***	0.057***	0.018***	0.019***	0.025***
	(9.46)	(9.48)	(6.31)	(3.89)	(3.97)	(3.50)
LEV_t	-0.049***	-0.058***	-0.085***	-0.033***	-0.031***	-0.058***

	(8.70)	(9.73)	(8.23)	(5.84)	(5.31)	(5.31)
LIT_t	-0.175***	-0.172***	-0.028	-0.309***	-0.310***	-0.184**
	(5.94)	(5.82)	(0.42)	(8.67)	(8.68)	(2.39)
MTB_t	-0.117***	-0.113***	-0.217***	-0.073***	-0.074***	-0.110***
	(8.56)	(8.20)	(6.92)	(7.32)	(7.34)	(4.74)
RET_t	0.099***	0.102***	0.129***	0.060***	0.060***	0.064***
	(15.99)	(16.24)	(11.56)	(13.00)	(13.02)	(8.09)
$RSIZE_t$	-0.083***	-0.076***	-0.056***	-0.065***	-0.068***	-0.052***
	(9.62)	(8.52)	(3.70)	(7.16)	(7.43)	(3.91)
$SCON_t$	-0.022*	-0.019	-0.016	-0.014	-0.018	-0.036*
	(1.90)	(1.61)	(0.80)	(1.26)	(1.56)	(1.76)
$SALEG_t$	-0.019*	-0.016	-0.012	0.051***	0.052***	0.060***
	(1.90)	(1.61)	(0.76)	(5.67)	(5.70)	(4.19)
$SIZE_t$	0.301***	0.272***	0.264***	0.453***	0.456***	0.468***
	(24.43)	(17.91)	(12.80)	(29.19)	(26.96)	(17.94)
$SHARE_t$	-0.068***	-0.066***	-0.065***	-0.089***	-0.087***	-0.097***
	(5.81)	(5.61)	(3.76)	(7.53)	(7.40)	(5.31)
R^2	0.23	0.23	0.21	0.21	0.21	0.18
N	45,654	45,496	14,138	45,654	45,496	14,138

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

Online Appendix

Measuring Firms' Market Orientation Using Textual Analysis of 10-K Filings

Panayiotis C. Andreou*,†, Terry Harris†, Dennis Philip†

This appendix presents the tables of results from additional supplemental analyses conducted. The analyses serve as robustness checks and strengthen the conclusions drawn in the paper. Also, the wordlist used to produce of the market orientation measure is documented.

The following items are presented in this online appendix, which are separated into five areas:

1 Additional analyses, which are reported in the following figure and table:

- Figure A.1 graph of market orientation scores for selected firms over the study period. We observe that the MO measure is typically persistent over time at the firm-level. At the same time, we also observe that the MO measure also responds to temporal changes in market orientation over the sample period.
- Table A.1 presents additional univariate analyses of the relationships between market orientation, corporate culture as theorized by the competing values framework (CVF) (Cameron et al., 2014), and 10-K sentiment/ tone. Further, it provides additional regression results aimed at supporting the relationship between market orientation and firms' performance.

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2 The main analysis in the paper is repeated using an alternative market orientation measure, which is constructed based on contextual word pairs appearing within a span of three words (-3 and +3) of one of the core words. The results are reported in the following tables:

- Table A.2 presents OLS and GLS-random effects regression estimates of market orientation, customer orientation, and competitor orientation on *customer satisfaction.*
- Table A.3 presents OLS and GLS-random effects regression estimates of market orientation, customer orientation, and competitor orientation on *market concentration.*
- Table A.4 presents OLS and GLS-random effects regression estimates of market orientation on *firms' performance.*
- Table A.5 presents OLS and GLS-random effects regression estimates of market orientation on *firms' Performance as moderated by the intensity of firms' market*.

3 The main analysis in the paper is repeated using an alternative market orientation measure, which is constructed based on contextual word pairs appearing within a span of five words (-5 and +5) of one of the core words. The results are reported in the following tables:

- Table A.6 presents OLS and GLS-random effects regression estimates of market orientation, customer orientation, and competitor orientation on customer satisfaction.
- Table A.7 presents OLS and GLS-random effects regression estimates of market orientation, customer orientation, and competitor orientation on market concentration.
- Table A.8 presents OLS and GLS-random effects regression estimates of market orientation on firms' performance.
- Table A.9 presents OLS and GLS-random effects regression estimates of market orientation on firms' Performance as moderated by the intensity of firms' market.

4 The main analysis in the paper is repeated and reproduced with standard errors clustered at firm-year and firm-industry-year levels. The results are reported in the following tables:

- Table A.10 presents OLS and GLS-random effects regression estimates of market orientation, customer orientation, and competitor orientation on customer satisfaction.
- Table A.11 presents OLS and GLS-random effects regression estimates of market orientation, customer orientation, and competitor orientation on market concentration.
- Table A.12 presents OLS and GLS-random effects regression estimates of market orientation on firms' performance.

- Table A.13 presents OLS and GLS-random effects regression estimates of market orientation on firms' Performance as moderated by the intensity of firms' market.

5 Market Orientation Wordlist: The full list of words used to produce our firm-level measure of market orientation is documented at the end of this appendix.

Figure A.1
Yearly Market Orientation Scores for Selected Firms

This figure provides a graph of market orientation scores for selected firms over the study period.

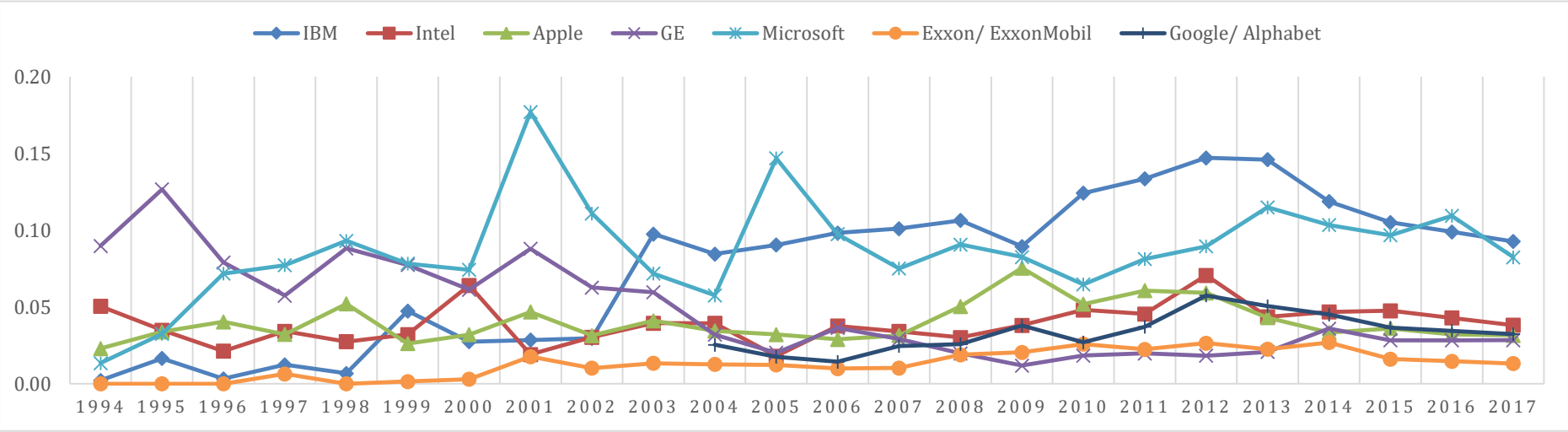

Table A.1: Univariate and Multivariate Analyses for the Relationship between Market Orientation and Firms' Performance

This table presents univariate analyses of the relationships between market orientation, corporate culture as theorized by the competing values framework (CVF) (Cameron et al., 2014), and 10-K sentiment/ tone. Further, it provides additional regression results aimed at supporting the relationship between market orientation and firms' performance. Panels A highlights Pearson's correlation results between our measure of market orientation, measures of corporate culture; namely, collaborate (*COL*), compete (*COM*), control (*CON*) and create (*CRE*) cultures that are produced following the method of Fiordelisi and Ricci's (2014), and measures of 10-K positive (*POS*) and negative (*NEG*) sentiment captured following the approach of Loughran and McDonald (2016). Panel B presents OLS (columns 1 to 3) and fixed effects (column 4) estimates for the relation between market orientation and firms' performance, where in columns (1) to (4) we include additional controls for corporate culture and 10-K sentiment. The correlation results utilize bold figures to indicate significance at the 5 percent level and above. The regressions all include year and industry dummies to capture year and industry-specific fixed effects; the standard errors are clustered at the firm-level.

Panel A. Pearson's correlations

	MO
COL	**0.1728**
COM	**0.3693**
CON	**0.182**
CRE	**0.0529**
POS	-0.0023
NEG	-0.0038

Panel B. OLS and fixed effects estimates for the relation between market orientation and firms' performance

	ROA_t			
	(1)	(2)	(3)	(4)
MO_t	0.028***	0.056***	0.047***	0.013*
	(3.57)	(6.51)	(5.17)	(1.66)
AGE_t	0.117***	0.109***	0.112***	0.227
	(12.91)	(12.27)	(11.46)	(0.96)
DIV_t	0.059***	0.051***	0.058***	0.016***
	(10.44)	(8.40)	(9.56)	(2.92)
LEV_t	-0.047***	-0.036***	-0.035***	-0.028***
	(7.13)	(5.79)	(4.78)	(3.86)
LIT_t	-0.147***	-0.117***	-0.091**	-0.062
	(4.43)	(3.63)	(2.54)	(0.37)
MTB_t	-0.090***	-0.140***	-0.099***	-0.061***
	(6.15)	(8.67)	(5.95)	(5.64)
RET_t	0.095***	0.101***	0.094***	0.050***
	(13.45)	(14.56)	(12.02)	(9.93)
$RSIZE_t$	-0.080***	-0.081***	-0.080***	-0.044***
	(8.68)	(8.53)	(7.93)	(3.95)
$SCON_t$	-0.016	-0.021	-0.017	-0.011
	(1.22)	(1.58)	(1.13)	(0.87)
$SALEG_t$	0.009	-0.021**	0.004	0.062***
	(0.72)	(1.96)	(0.31)	(6.05)
$SIZE_t$	0.314***	0.322***	0.334***	0.515***
	(22.62)	(24.07)	(22.34)	(21.89)
$SHARE_t$	-0.075***	-0.068***	-0.075***	-0.078***
	(6.04)	(4.70)	(5.06)	(5.65)
COL_t	-0.008		-0.012	

	(1.05)		(1.36)	
COM_t	0.011		0.022**	
	(1.11)		(1.99)	
CON_t	0.017*		0.018*	
	(1.89)		(1.82)	
CRE_t	0.013*		0.027***	
	(1.83)		(3.46)	
POS_t		-0.067***	-0.073***	
		(7.68)	(7.69)	
NEG_t		-0.146***	-0.144***	
		(18.71)	(16.51)	
R^2	0.24	0.26	0.27	0.66
N	33,594	36,353	27,288	45,654

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

Table A.2
OLS and GLS-Random Effects Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Customer Satisfaction using a +/- 3 word window

This table presents OLS and GLS-RE estimates for the relations between market orientation, customer orientation, competitor orientation and customer satisfaction. The OLS estimates are shown in columns (1) - (4), while columns (5) - (8) present the GLS random effects regression results. The dependent variable *SAT* is the firm's industry American Customer Satisfaction Index (ACSI) averaged over the past three fiscal years. The value of *MO* is a firm's market orientation estimated from the firm's 10-K filings. The variables *CUST* and *COMP* represent the firm's customer orientation and competitor orientation estimated using firm's 10-K reports. The variable *AGE* denotes the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is a firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time invariant fixed year and industry specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	SAT_t							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.044***				0.058***			
	(7.86)				(8.48)			
$CUST_t$		0.045***		0.044***		0.063***		0.062***
		(7.50)		(7.30)		(8.57)		(8.33)
$COMP_t$			0.012***	0.008*			0.011**	0.004
			(2.77)	(1.78)			(2.07)	(0.74)
AGE_t	0.046***	0.045***	0.043***	0.045***	0.052***	0.051***	0.049***	0.051***
	(8.77)	(8.63)	(8.26)	(8.72)	(8.87)	(8.74)	(8.34)	(8.77)
DIV_t	0.002	0.002	0.001	0.002	0.018***	0.018***	0.017***	0.018***
	(0.40)	(0.40)	(0.10)	(0.42)	(4.11)	(4.11)	(3.93)	(4.12)
LEV_t	0.005	0.004	0.003	0.005	0.006	0.006	0.005	0.006
	(1.23)	(1.13)	(0.76)	(1.20)	(1.51)	(1.46)	(1.25)	(1.48)
LIT_t	0.005	0.006	0.012	0.006	0.002	0.003	0.013	0.003
	(0.27)	(0.31)	(0.58)	(0.27)	(0.08)	(0.13)	(0.52)	(0.11)
MTB_t	-0.006	-0.006	-0.005	-0.006	-0.006*	-0.006*	-0.005	-0.006*
	(1.47)	(1.49)	(1.32)	(1.48)	(1.69)	(1.67)	(1.59)	(1.68)
RET_t	-0.012***	-0.012***	-0.012***	-0.012***	-0.009***	-0.009***	-0.010***	-0.009***
	(3.72)	(3.70)	(3.76)	(3.71)	(2.94)	(2.91)	(3.06)	(2.91)

$SALEG_t$	-0.015***	-0.015***	-0.016***	-0.015***	-0.015***	-0.014***	-0.016***	-0.014***
	(4.58)	(4.52)	(4.81)	(4.54)	(5.10)	(5.05)	(5.36)	(5.05)
$SIZE_t$	0.002	0.002	0.005	0.002	-0.023**	-0.023**	-0.018	-0.023**
	(0.25)	(0.23)	(0.61)	(0.23)	(2.03)	(2.05)	(1.59)	(2.06)
$SHARE_t$	-0.024**	-0.024**	-0.025**	-0.024**	-0.024	-0.025	-0.026	-0.024
	(2.14)	(2.16)	(2.25)	(2.15)	(1.50)	(1.53)	(1.58)	(1.53)
R^2	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
N	21,275	21,275	21,275	21,275	21,275	21,275	21,275	21,275

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

Table A.3
OLS and GLS-Random Effects Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Market Concentration using a +/- 3 word window

This table presents OLS and GLS-RE estimates for the relations between market orientation, customer orientation, competitor orientation and market concentration. The OLS estimates are shown in columns (1) - (4), while columns (5) - (8) present the GLS-RE regression results. The dependent variable *MKCOM* is the Herfindahl-Hirschman concentration ratio based on firm's sales revenue by two (2) digit SIC code and fiscal year. The variable *MO* is a firm's market orientation estimated from the firm's 10-Ks, *CUST* represents the firm's customer orientation computed from the firm's 10-Ks, and *COMP* is the firm's competitor orientation estimated using the firm's 10-Ks. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	$MKCON_t$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.018**				0.014*			
	(2.29)				(1.77)			
$CUST_t$		0.002		0		-0.007*		-0.008**
		(0.31)		(0.06)		(1.87)		(2.05)
$COMP_t$			0.011**	0.011**			0.014*	0.013*
			(2.02)	(2.03)			(1.85)	(1.86)
AGE_t	-0.006	0.003	0.005	0.005	0.004	0.004	0.005	0.004
	(0.78)	(0.48)	(0.62)	(0.62)	(0.69)	(0.68)	(0.77)	(0.73)
DIV_t	0.006	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	(0.88)	(0.65)	(0.70)	(0.70)	(1.38)	(1.38)	(1.37)	(1.38)
LEV_t	0.008	0.005	0.006	0.006	-0.001	-0.001	-0.001	-0.001
	(0.88)	(0.65)	(0.70)	(0.71)	(0.33)	(0.33)	(0.30)	(0.31)
LIT_t	-0.265***	-0.197***	-0.199***	-0.199***	-0.148***	-0.148***	-0.149***	-0.149***
	(10.31)	(8.35)	(8.42)	(8.43)	(4.30)	(4.31)	(4.33)	(4.34)
MTB_t	0.001	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	(0.15)	(0.52)	(0.49)	(0.49)	(1.09)	(1.08)	(1.08)	(1.07)
RET_t	-0.002	0.003	0.003	0.003	0.007***	0.007***	0.007***	0.007***
	(0.75)	(0.92)	(0.87)	(0.87)	(4.79)	(4.77)	(4.79)	(4.76)

$SALEG_t$	0.001	0.005	0.004	0.004	0.007***	0.007***	0.007***	0.007***
	(0.23)	(1.48)	(1.43)	(1.43)	(4.07)	(4.07)	(4.05)	(4.06)
$SIZE_t$	-0.01	-0.013	-0.013	-0.013	-0.031***	-0.031***	-0.031***	-0.031***
	(0.96)	(1.24)	(1.22)	(1.21)	(3.03)	(3.02)	(3.06)	(3.03)
$SHARE_t$	0.036**	0.034*	0.034*	0.034*	0.009	0.009	0.01	0.009
	(1.97)	(1.87)	(1.88)	(1.88)	(0.90)	(0.89)	(0.91)	(0.90)
R^2	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.57
N	58,595	58,595	58,595	58,595	58,595	58,595	58,595	58,595

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

Table A.4
OLS and GLS-Random Effects Regression Estimates of Market Orientation on Firms' Performance using a +/- 3 word window

This table presents OLS and GLS-RE estimates for the relations between market orientation and firms' performance as measured by return on total assets. The OLS estimates are shown in columns (1) - (3), while columns (4) - (6) present the GLS-RE regression results. The dependent variable *ROA* is a firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is the firm's market orientation estimated from the firm's 10-Ks, and *ΔMO* represents the change in market orientation over the fiscal year. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of the firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.033***			0.014**		
	(4.75)			(2.31)		
ΔMO_t		0.016***	0.019***		0.010***	0.009**
		(3.96)	(4.19)		(2.85)	(2.43)
MO_{t-1}		0.035***			0.014*	
		(4.49)			(1.69)	
ΔMO_{t-1}			0.031***			0.011**
			(5.75)			(2.10)
MO_{t-2}			0.030***			-0.003
			(3.36)			(0.31)
AGE_t	0.113***	0.114***	0.122***	0.101***	0.102***	0.107***
	(13.81)	(13.69)	(12.99)	(10.06)	(9.95)	(8.86)
DIV_t	0.052***	0.053***	0.052***	0.019***	0.019***	0.017***
	(9.61)	(9.60)	(9.23)	(4.02)	(3.99)	(3.50)
LEV_t	-0.049***	-0.049***	-0.049***	-0.033***	-0.032***	-0.035***
	(8.73)	(8.39)	(8.25)	(5.74)	(5.43)	(5.76)
LIT_t	-0.172***	-0.173***	-0.162***	-0.306***	-0.307***	-0.296***
	(5.85)	(5.79)	(5.10)	(8.61)	(8.50)	(7.61)
MTB_t	-0.117***	-0.114***	-0.107***	-0.073***	-0.072***	-0.068***

	(8.53)	(8.27)	(7.41)	(7.32)	(7.15)	(6.41)
RET_t	0.099***	0.097***	0.087***	0.060***	0.058***	0.051***
	(16.00)	(15.29)	(12.98)	(13.07)	(12.39)	(10.44)
$RSIZE_t$	-0.082***	-0.082***	-0.078***	-0.066***	-0.066***	-0.061***
	(9.59)	(9.45)	(8.69)	(7.24)	(7.15)	(6.47)
$SCON_t$	-0.021*	-0.016	-0.009	-0.014	-0.009	0.001
	(1.77)	(1.31)	(0.67)	(1.26)	(0.77)	(0.07)
$SALEG_t$	-0.019*	-0.020*	0.015	0.051***	0.051***	0.083***
	(1.90)	(1.90)	(1.15)	(5.67)	(5.46)	(7.24)
$SIZE_t$	0.301***	0.305***	0.299***	0.453***	0.458***	0.446***
	(24.42)	(24.25)	(22.89)	(29.20)	(29.01)	(26.54)
$SHARE_t$	-0.068***	-0.070***	-0.069***	-0.089***	-0.091***	-0.089***
	(5.85)	(5.99)	(5.84)	(7.52)	(7.51)	(6.93)
R^2	0.23	0.23	0.23	0.21	0.21	0.21
N	45,654	44,111	39,332	45,654	44,111	39,332

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

Table A.5
OLS and GLS-Random Effects Regression Estimates of Market Orientation on Firms' Performance as Moderated by the Intensity of Firms' Market using a +/- 3 word window

This table presents OLS and GLS-RE estimates for the role played by the intensity of firm product market competition in the relation between market orientation and firms' performance as measured by return on total assets. The OLS estimates are shown in columns (1) - (3), while columns (4) - (6) present the GLS-RE regression results. The dependent variable *ROA* is firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is a firm's market orientation estimated from the firm's10-K reports. The variable *HIGH _COUNT* is an indicator that is equal to one if the firm is in an industry with an above median number of firms, and zero otherwise. The variable *LOW_PPE* is equal to one if the firm is in an industry with below median gross property plant and equipment, and zero otherwise. The variable *LOW_TARIFF* is equal to one if the firm is in an industry with below median tariff rates, and zero otherwise. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.005	0.032***	-0.03	-0.007	0.004	-0.033**
	(0.64)	(4.93)	(1.58)	(0.92)	(0.65)	(2.36)
HIGH_COUNT	0.030*			0.030**		
	(1.88)			(2.13)		
$MO_t \times HIGH\_COUNT$	0.049***			0.039***		
	(4.59)			(4.27)		
LOW_PPE		-0.071***			0.014	
		(3.42)			(0.74)	
$MO_t \times LOW\_PPE$		0.003			0.019*	
		(0.27)			(1.76)	
LOW_TARIFF			-0.096***			-0.084***
			(3.74)			(4.06)
$MO_t \times LOW\_TARIFF$			0.033			0.028
			(1.24)			(1.29)
AGE_t	0.113***	0.110***	0.151***	0.101***	0.102***	0.140***

	(13.81)	(13.45)	(10.03)	(10.06)	(10.18)	(7.25)
DIV_t	0.052***	0.052***	0.058***	0.018***	0.019***	0.025***
	(9.46)	(9.45)	(6.33)	(3.90)	(3.98)	(3.51)
LEV_t	-0.050***	-0.058***	-0.085***	-0.033***	-0.031***	-0.058***
	(8.76)	(9.74)	(8.19)	(5.83)	(5.30)	(5.31)
LIT_t	-0.172***	-0.169***	-0.032	-0.306***	-0.307***	-0.184**
	(5.85)	(5.73)	(0.47)	(8.62)	(8.62)	(2.39)
MTB_t	-0.117***	-0.113***	-0.217***	-0.073***	-0.074***	-0.111***
	(8.55)	(8.20)	(6.91)	(7.32)	(7.34)	(4.74)
RET_t	0.099***	0.102***	0.129***	0.060***	0.060***	0.064***
	(16.00)	(16.24)	(11.54)	(13.01)	(13.01)	(8.10)
$RSIZE_t$	-0.083***	-0.077***	-0.056***	-0.065***	-0.068***	-0.052***
	(9.64)	(8.55)	(3.66)	(7.18)	(7.43)	(3.90)
$SCON_t$	-0.022*	-0.018	-0.017	-0.014	-0.017	-0.036*
	(1.85)	(1.55)	(0.84)	(1.25)	(1.50)	(1.79)
$SALEG_t$	-0.019*	-0.016	-0.012	0.051***	0.052***	0.060***
	(1.89)	(1.62)	(0.75)	(5.67)	(5.69)	(4.20)
$SIZE_t$	0.301***	0.273***	0.264***	0.453***	0.457***	0.468***
	(24.42)	(17.96)	(12.80)	(29.18)	(26.96)	(17.93)
$SHARE_t$	-0.068***	-0.066***	-0.065***	-0.089***	-0.088***	-0.097***
	(5.83)	(5.65)	(3.75)	(7.54)	(7.44)	(5.34)
R^2	0.23	0.23	0.21	0.21	0.21	0.18
N	45,654	45,496	14,138	45,654	45,496	14,138

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

Table A.6
OLS and GLS-Random Effects Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Customer Satisfaction using a +/- 5 word window

This table presents OLS and GLS-RE estimates for the relations between market orientation, customer orientation, competitor orientation and customer satisfaction. The OLS estimates are shown in columns (1) - (4), while columns (5) - (8) present the GLS random effects regression results. The dependent variable *SAT* is the firm's industry American Customer Satisfaction Index (ACSI) averaged over the past three fiscal years. The value of *MO* is a firm's market orientation estimated from the firm's 10-K filings. The variables *CUST* and *COMP* represent the firm's customer orientation and competitor orientation estimated using firm's 10-K reports. The variable *AGE* denotes the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is a firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time invariant fixed-year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	SAT_t							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.050***				0.065***			
	(7.34)				(8.89)			
$CUST_t$		0.050***		0.050***		0.071***		0.072***
		(7.06)		(6.88)		(9.15)		(9.00)
$COMP_t$			0.011**	0.005			0.008	-0.003
			(2.47)	(1.07)			(1.47)	(0.44)
AGE_t	0.046***	0.046***	0.042***	0.046***	0.052***	0.052***	0.048***	0.052***
	(8.88)	(8.78)	(8.25)	(8.83)	(8.95)	(8.87)	(8.30)	(8.84)
DIV_t	0.002	0.002	0.001	0.002	0.018***	0.018***	0.017***	0.018***
	(0.48)	(0.43)	(0.13)	(0.46)	(4.13)	(4.13)	(3.92)	(4.12)
LEV_t	0.005	0.005	0.003	0.005	0.007	0.007	0.005	0.007
	(1.37)	(1.25)	(0.77)	(1.30)	(1.59)	(1.56)	(1.23)	(1.55)
LIT_t	0.004	0.004	0.012	0.004	0	0.001	0.014	0.001
	(0.17)	(0.20)	(0.59)	(0.18)	(0.01)	(0.03)	(0.55)	(0.05)
MTB_t	-0.006	-0.006	-0.005	-0.006	-0.006*	-0.006*	-0.005	-0.006*
	(1.56)	(1.53)	(1.37)	(1.55)	(1.73)	(1.68)	(1.60)	(1.67)
RET_t	-0.012***	-0.012***	-0.012***	-0.012***	-0.009***	-0.009***	-0.010***	-0.009***
	(3.75)	(3.77)	(3.72)	(3.76)	(2.98)	(2.99)	(3.05)	(3.00)

$SALEG_t$	-0.015***	-0.015***	-0.016***	-0.015***	-0.015***	-0.014***	-0.016***	-0.014***
	(4.55)	(4.51)	(4.80)	(4.52)	(5.09)	(5.05)	(5.36)	(5.04)
$SIZE_t$	0.002	0.002	0.005	0.002	-0.023**	-0.023**	-0.018	-0.023**
	(0.28)	(0.23)	(0.62)	(0.24)	(2.02)	(2.08)	(1.58)	(2.07)
$SHARE_t$	-0.023**	-0.023**	-0.025**	-0.023**	-0.024	-0.024	-0.026	-0.024
	(2.12)	(2.13)	(2.25)	(2.12)	(1.49)	(1.52)	(1.59)	(1.52)
R^2	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
N	21,275	21,275	21,275	21,275	21,275	21,275	21,275	21,275

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

Table A.7
OLS and GLS-Random Effects Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Market Concentration +/- 5 word window

This table presents OLS and GLS-RE estimates for the relations between market orientation, customer orientation, competitor orientation and market concentration. The OLS estimates are shown in columns (1) - (4), while columns (5) - (8) present the GLS-RE regression results. The dependent variable *MKCOM* is the Herfindahl-Hirschman concentration ratio based on firm's sales revenue by two (2) digit SIC code and fiscal year. The variable *MO* is a firm's market orientation estimated from the firm's 10-Ks, *CUST* represents the firm's customer orientation computed from the firm's 10-Ks, and *COMP* is the firm's competitor orientation estimated using the firm's 10-Ks. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	$MKCON_t$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.020**				0.015*			
	(2.40)				(1.78)			
$CUST_t$		0.005		0.003		-0.004		-0.006
		(0.65)		(0.35)		(1.09)		(1.47)
$COMP_t$			0.013**	0.012**			0.014*	0.016*
			(2.23)	(2.16)			(1.82)	(1.83)
AGE_t	-0.006	0.004	0.005	0.005	0.004	0.004	0.005	0.005
	(0.75)	(0.51)	(0.64)	(0.66)	(0.72)	(0.70)	(0.80)	(0.76)
DIV_t	0.006	0.004	0.005	0.005	0.004	0.004	0.004	0.004
	(0.90)	(0.66)	(0.72)	(0.73)	(1.38)	(1.38)	(1.37)	(1.37)
LEV_t	0.008	0.006	0.006	0.006	-0.001	-0.001	-0.001	-0.001
	(0.90)	(0.67)	(0.73)	(0.74)	(0.32)	(0.33)	(0.30)	(0.30)
LIT_t	-0.267***	-0.197***	-0.201***	-0.200***	-0.148***	-0.148***	-0.150***	-0.150***
	(10.34)	(8.36)	(8.45)	(8.45)	(4.30)	(4.31)	(4.35)	(4.36)
MTB_t	0.001	0.003	0.002	0.002	0.003	0.003	0.003	0.003
	(0.15)	(0.52)	(0.46)	(0.47)	(1.09)	(1.08)	(1.07)	(1.06)
RET_t	-0.002	0.003	0.003	0.003	0.007***	0.007***	0.007***	0.007***
	(0.76)	(0.92)	(0.90)	(0.90)	(4.79)	(4.79)	(4.79)	(4.78)

$SALEG_t$	0.001	0.005	0.004	0.004	0.007***	0.007***	0.007***	0.007***
	(0.23)	(1.49)	(1.42)	(1.44)	(4.06)	(4.07)	(4.04)	(4.05)
$SIZE_t$	-0.011	-0.013	-0.013	-0.013	-0.031***	-0.031***	-0.031***	-0.031***
	(0.96)	(1.25)	(1.21)	(1.22)	(3.04)	(3.03)	(3.07)	(3.04)
$SHARE_t$	0.036**	0.034*	0.034*	0.034*	0.01	0.01	0.01	0.01
	(1.98)	(1.87)	(1.88)	(1.88)	(0.91)	(0.90)	(0.92)	(0.91)
R^2	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.57
N	58,595	58,595	58,595	58,595	58,595	58,595	58,595	58,595

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

Table A.8
OLS and GLS-Random Effects Regression Estimates of Market Orientation on Firms' Performance +/- 5 word window

This table presents OLS and GLS-RE estimates for the relations between market orientation and firms' performance as measured by return on total assets. The OLS estimates are shown in columns (1) - (3), while columns (4) - (6) present the GLS-RE regression results. The dependent variable *ROA* is a firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is the firm's market orientation estimated from the firm's 10-Ks, and *ΔMO* represents the change in market orientation over the fiscal year. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of the firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.038***			0.021***		
	(5.14)			(3.23)		
ΔMO_t		0.018***	0.022***		0.013***	0.013***
		(4.17)	(4.56)		(3.40)	(3.03)
MO_{t-1}		0.040***			0.021**	
		(4.71)			(2.41)	
ΔMO_{t-1}			0.037***			0.016***
			(6.54)			(3.01)
MO_{t-2}			0.034***			0.003
			(3.55)			(0.30)
AGE_t	0.113***	0.115***	0.123***	0.101***	0.103***	0.108***
	(13.88)	(13.76)	(13.04)	(10.12)	(10.02)	(8.91)
DIV_t	0.053***	0.053***	0.053***	0.019***	0.019***	0.017***
	(9.66)	(9.65)	(9.27)	(4.03)	(4.00)	(3.50)
LEV_t	-0.049***	-0.048***	-0.049***	-0.033***	-0.032***	-0.035***
	(8.63)	(8.30)	(8.18)	(5.72)	(5.41)	(5.76)
LIT_t	-0.175***	-0.176***	-0.164***	-0.308***	-0.309***	-0.296***
	(5.93)	(5.87)	(5.16)	(8.66)	(8.54)	(7.61)
MTB_t	-0.117***	-0.114***	-0.108***	-0.073***	-0.072***	-0.068***

	(8.54)	(8.28)	(7.42)	(7.32)	(7.16)	(6.42)
RET_t	0.099***	0.097***	0.087***	0.060***	0.058***	0.051***
	(16.00)	(15.28)	(12.97)	(13.07)	(12.40)	(10.44)
$RSIZE_t$	-0.082***	-0.082***	-0.078***	-0.065***	-0.065***	-0.061***
	(9.54)	(9.39)	(8.64)	(7.21)	(7.12)	(6.44)
$SCON_t$	-0.021*	-0.017	-0.009	-0.014	-0.009	0.001
	(1.80)	(1.34)	(0.70)	(1.28)	(0.79)	(0.06)
$SALEG_t$	-0.019*	-0.020*	0.015	0.051***	0.051***	0.083***
	(1.91)	(1.91)	(1.15)	(5.67)	(5.45)	(7.24)
$SIZE_t$	0.301***	0.305***	0.299***	0.453***	0.458***	0.446***
	(24.43)	(24.26)	(22.91)	(29.19)	(29.01)	(26.54)
$SHARE_t$	-0.068***	-0.070***	-0.069***	-0.089***	-0.091***	-0.089***
	(5.84)	(5.97)	(5.83)	(7.50)	(7.49)	(6.92)
R^2	0.23	0.23	0.23	0.21	0.21	0.21
N	45,654	44,111	39,332	45,654	44,111	39,332

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

Table A.9
OLS and GLS-Random Effects Regression Estimates of Market Orientation on Firms' Performance as Moderated by the Intensity of Firms' Market +/- 5 word window

This table presents OLS and GLS-RE estimates for the role played by the intensity of firm product market competition in the relation between market orientation and firms' performance as measured by return on total assets. The OLS estimates are shown in columns (1) - (3), while columns (4) - (6) present the GLS-RE regression results. The dependent variable *ROA* is a firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is a firm's market orientation estimated from the firm's 10-K reports. The variable *HIGH _COUNT* is an indicator that is equal to one if the firm is in an industry with an above median number of firms, and zero otherwise. The variable *LOW_PPE* is equal to one if the firm is in an industry with below median gross property plant and equipment, and zero otherwise. The variable *LOW_TARIFF* is equal to one if the firm is in an industry with below median tariff rates, and zero otherwise. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the standard errors are clustered at the firm-level. *T*-statistics are given in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.005	0.034***	-0.039*	-0.005	0.005	-0.027*
	(0.53)	(4.91)	(1.88)	(0.66)	(0.79)	(1.88)
HIGH_COUNT	0.030*			0.030**		
	(1.93)			(2.16)		
$MO_t \times HIGH\_COUNT$	0.056***			0.047***		
	(4.93)			(4.86)		
LOW_PPE		-0.073***			0.012	
		(3.52)			(0.65)	
$MO_t \times LOW\_PPE$		0.01			0.031***	
		(0.83)			(2.64)	
LOW_TARIFF			-0.093***			-0.078***
			(3.56)			(3.69)
$MO_t \times LOW\_TARIFF$			0.043			0.044*
			(1.55)			(1.94)
AGE_t	0.113***	0.111***	0.150***	0.101***	0.102***	0.140***

	(13.86)	(13.53)	(9.92)	(10.11)	(10.24)	(7.24)
DIV_t	0.052***	0.052***	0.057***	0.018***	0.019***	0.025***
	(9.46)	(9.48)	(6.32)	(3.89)	(3.97)	(3.51)
LEV_t	-0.049***	-0.058***	-0.085***	-0.033***	-0.031***	-0.058***
	(8.68)	(9.70)	(8.23)	(5.83)	(5.31)	(5.31)
LIT_t	-0.176***	-0.172***	-0.027	-0.309***	-0.310***	-0.185**
	(5.96)	(5.83)	(0.40)	(8.68)	(8.69)	(2.40)
MTB_t	-0.117***	-0.113***	-0.217***	-0.073***	-0.074***	-0.110***
	(8.56)	(8.20)	(6.92)	(7.32)	(7.33)	(4.74)
RET_t	0.099***	0.102***	0.129***	0.060***	0.060***	0.064***
	(15.99)	(16.24)	(11.56)	(12.99)	(13.02)	(8.10)
$RSIZE_t$	-0.083***	-0.076***	-0.056***	-0.065***	-0.068***	-0.052***
	(9.61)	(8.51)	(3.70)	(7.14)	(7.43)	(3.90)
$SCON_t$	-0.023*	-0.019	-0.017	-0.014	-0.018	-0.036*
	(1.91)	(1.62)	(0.80)	(1.27)	(1.57)	(1.77)
$SALEG_t$	-0.019*	-0.016	-0.012	0.051***	0.052***	0.060***
	(1.90)	(1.61)	(0.76)	(5.66)	(5.70)	(4.19)
$SIZE_t$	0.301***	0.272***	0.264***	0.453***	0.456***	0.469***
	(24.44)	(17.91)	(12.81)	(29.18)	(26.95)	(17.96)
$SHARE_t$	-0.068***	-0.066***	-0.065***	-0.089***	-0.087***	-0.097***
	(5.80)	(5.60)	(3.76)	(7.54)	(7.40)	(5.31)
R^2	0.23	0.23	0.21	0.21	0.21	0.18
N	45,654	45,496	14,138	45,654	45,496	14,138

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

Table A.10
OLS Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Customer Satisfaction

This table presents OLS estimates for the relations between market orientation, customer orientation, competitor orientation and customer satisfaction. The standard errors of the OLS estimates shown in columns (1) - (4) are clustered at the firm and year level, while the standard errors of the OLS estimates shown in columns (5) - (8) are clustered at the firm, industry and year level. The dependent variable *SAT* is the firm's industry American Customer Satisfaction Index (ACSI) averaged over the past three fiscal years. The value of *MO* is a firm's market orientation estimated from the firm's 10-K filings. The variables *CUST* and *COMP* represent the firm's customer orientation and competitor orientation estimated using firm's 10-K reports. The variable *AGE* denotes the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is a firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant term and the *T*-statistics are given in parentheses.

	SAT_t							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.048***				0.048***			
	(11.85)				(11.85)			
$CUST_t$		0.049***		0.048***		0.049***		0.048***
		(11.64)		(11.33)		(11.64)		(11.33)
$COMP_t$			0.012***	0.007**			0.012***	0.007**
			(3.97)	(2.23)			(3.97)	(2.23)
AGE_t	0.046***	0.045***	0.043***	0.046***	0.046***	0.045***	0.043***	0.046***
	(12.03)	(11.87)	(11.16)	(11.97)	(12.03)	(11.87)	(11.16)	(11.97)
DIV_t	0.002	0.002	0.001	0.002	0.002	0.002	0.001	0.002
	(0.75)	(0.69)	(0.21)	(0.74)	(0.75)	(0.69)	(0.21)	(0.74)
LEV_t	0.005*	0.005	0.003	0.005*	0.005*	0.005	0.003	0.005*
	(1.79)	(1.61)	(1.08)	(1.72)	(1.79)	(1.61)	(1.08)	(1.72)
LIT_t	0.004	0.004	0.012	0.004	0.004	0.004	0.012	0.004
	(0.23)	(0.27)	(0.72)	(0.23)	(0.23)	(0.27)	(0.72)	(0.23)
MTB_t	-0.006*	-0.006*	-0.005	-0.006*	-0.006*	-0.006*	-0.005	-0.006*
	(1.74)	(1.71)	(1.55)	(1.73)	(1.74)	(1.71)	(1.55)	(1.73)
RET_t	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***
	(3.56)	(3.56)	(3.57)	(3.56)	(3.56)	(3.56)	(3.57)	(3.56)
$SALEG_t$	-0.015***	-0.015***	-0.016***	-0.015***	-0.015***	-0.015***	-0.016***	-0.015***

	(4.74)	(4.69)	(5.00)	(4.71)	(4.74)	(4.69)	(5.00)	(4.71)
$SIZE_t$	0.002	0.002	0.005	0.002	0.002	0.002	0.005	0.002
	(0.45)	(0.37)	(1.02)	(0.38)	(0.45)	(0.37)	(1.02)	(0.38)
$SHARE_t$	-0.023***	-0.024***	-0.025***	-0.023***	-0.023***	-0.024***	-0.025***	-0.023***
	(4.90)	(4.91)	(5.19)	(4.90)	(4.90)	(4.91)	(5.19)	(4.90)
R^2	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
N	21,275	21,275	21,275	21,275	21,275	21,275	21,275	21,275

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

Table A.11
OLS Regression Estimates of Market Orientation, Customer Orientation, and Competitor Orientation on Market Concentration

This table presents OLS estimates for the relations between market orientation, customer orientation, competitor orientation and market concentration. The standard errors of the OLS estimates shown in columns (1) - (4) are clustered at the firm and year level, while the standard errors of the OLS estimates shown in columns (5) - (8) are clustered at the firm, industry and year level. The dependent variable *MKCOM* is the Herfindahl-Hirschman concentration ratio based on firm's sales revenue by two (2) digit SIC code and fiscal year. The variable *MO* is a firm's market orientation estimated from the firm's 10-Ks, *CUST* represents the firm's customer orientation computed from the firm's 10-Ks, and *COMP* is the firm's competitor orientation estimated using the firm's 10-Ks. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* represents the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant term and the *T*-statistics are given in parentheses.

	$MKCON_t$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MO_t	0.020***				0.020***			
	(6.41)				(6.41)			
$CUST_t$		0.004		0.002		0.004		0.002
		(1.48)		(0.85)		(1.48)		(0.85)
$COMP_t$			0.011***	0.011***			0.011***	0.011***
			(4.29)	(4.16)			(4.29)	(4.16)
AGE_t	-0.006**	0.004	0.005	0.005	-0.006**	0.004	0.005	0.005
	(2.06)	(1.18)	(1.47)	(1.52)	(2.06)	(1.18)	(1.47)	(1.52)
DIV_t	0.006**	0.004	0.005	0.005	0.006**	0.004	0.005	0.005
	(2.08)	(1.32)	(1.43)	(1.45)	(2.08)	(1.32)	(1.43)	(1.45)
LEV_t	0.008**	0.005	0.006	0.006	0.008**	0.005	0.006	0.006
	(2.06)	(1.44)	(1.57)	(1.59)	(2.06)	(1.44)	(1.57)	(1.59)
LIT_t	-0.266***	-0.197***	-0.200***	-0.200***	-0.266***	-0.197***	-0.200***	-0.200***
	(34.48)	(24.34)	(24.57)	(24.57)	(34.48)	(24.34)	(24.57)	(24.57)
MTB_t	0.001	0.003	0.002	0.002	0.001	0.003	0.002	0.002
	(0.30)	(0.91)	(0.82)	(0.83)	(0.30)	(0.91)	(0.82)	(0.83)
RET_t	-0.002	0.003	0.003	0.003	-0.002	0.003	0.003	0.003
	(0.89)	(1.06)	(1.02)	(1.03)	(0.89)	(1.06)	(1.02)	(1.03)

$SALEG_t$	0.001	0.005	0.004	0.004	0.001	0.005	0.004	0.004
	(0.25)	(1.60)	(1.54)	(1.55)	(0.25)	(1.60)	(1.54)	(1.55)
$SIZE_t$	-0.010***	-0.013***	-0.013***	-0.013***	-0.010***	-0.013***	-0.013***	-0.013***
	(2.92)	(3.37)	(3.25)	(3.28)	(2.92)	(3.37)	(3.25)	(3.28)
$SHARE_t$	0.036***	0.034***	0.034***	0.034***	0.036***	0.034***	0.034***	0.034***
	(7.58)	(6.63)	(6.63)	(6.63)	(7.58)	(6.63)	(6.63)	(6.63)
R^2	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
N	58,595	58,595	58,595	58,595	58,595	58,595	58,595	58,595

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

Table A.12
OLS Regression Estimates of Market Orientation on Firms' Performance

This table presents OLS estimates for the relations between market orientation and firms' performance as measured by return on total assets. The standard errors of the OLS estimates shown in columns (1) - (3) are clustered at the firm and year level, while the standard errors of the OLS estimates shown in columns (4) - (6) are clustered at the firm, industry and year level. The dependent variable *ROA* is a firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is the firm's market orientation estimated from the firm's 10-Ks, and *ΔMO* represents the change in market orientation over the fiscal year. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of the firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the *T*-statistics are given in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.037***			0.037***		
	(8.45)			(8.45)		
ΔMO_t		0.019***	0.022***		0.019***	0.022***
		(4.42)	(4.69)		(4.42)	(4.69)
MO_{t-1}		0.040***			0.040***	
		(8.08)			(8.08)	
ΔMO_{t-1}			0.037***			0.037***
			(7.33)			(7.33)
MO_{t-2}			0.033***			0.033***
			(6.24)			(6.24)
AGE_t	0.113***	0.115***	0.122***	0.113***	0.115***	0.122***
	(22.53)	(22.30)	(21.26)	(22.53)	(22.30)	(21.26)
DIV_t	0.053***	0.053***	0.053***	0.053***	0.053***	0.053***
	(15.81)	(15.76)	(15.03)	(15.81)	(15.76)	(15.03)
LEV_t	-0.049***	-0.048***	-0.049***	-0.049***	-0.048***	-0.049***
	(12.75)	(12.23)	(11.98)	(12.75)	(12.23)	(11.98)
LIT_t	-0.174***	-0.176***	-0.163***	-0.174***	-0.176***	-0.163***
	(11.90)	(11.76)	(10.35)	(11.90)	(11.76)	(10.35)

MTB_t	-0.117***	-0.114***	-0.108***	-0.117***	-0.114***	-0.108***
	(11.31)	(10.93)	(9.78)	(11.31)	(10.93)	(9.78)
RET_t	0.099***	0.097***	0.087***	0.099***	0.097***	0.087***
	(16.14)	(15.47)	(13.04)	(16.14)	(15.47)	(13.04)
$RSIZE_t$	-0.082***	-0.082***	-0.078***	-0.082***	-0.082***	-0.078***
	(18.16)	(17.84)	(16.34)	(18.16)	(17.84)	(16.34)
$SCON_t$	-0.021**	-0.016*	-0.009	-0.021**	-0.016*	-0.009
	(2.30)	(1.69)	(0.86)	(2.30)	(1.69)	(0.86)
$SALEG_t$	-0.019**	-0.020**	0.015	-0.019**	-0.020**	0.015
	(2.06)	(2.06)	(1.23)	(2.06)	(2.06)	(1.23)
$SIZE_t$	0.301***	0.305***	0.299***	0.301***	0.305***	0.299***
	(45.37)	(44.98)	(42.20)	(45.37)	(44.98)	(42.20)
$SHARE_t$	-0.068***	-0.070***	-0.069***	-0.068***	-0.070***	-0.069***
	(13.75)	(14.00)	(13.65)	(13.75)	(14.00)	(13.65)
R^2	0.23	0.23	0.23	0.23	0.23	0.23
N	45,654	44,111	39,335	45,654	44,111	39,335

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

Table A.13
OLS Regression Estimates of Market Orientation on Firms' Performance as Moderated by the Intensity of Firms' Market

This table presents OLS and GLS-RE estimates for the role played by the intensity of firm product market competition in the relation between market orientation and firms' performance as measured by return on total assets. The standard errors of the OLS estimates shown in columns (1) - (3) are clustered at the firm and year level, while the standard errors of the OLS estimates shown in columns (4) - (6) are clustered at the firm, industry and year level. The dependent variable *ROA* is a firm's return on assets defined as income before extraordinary items divided by total assets. The variable *MO* is a firm's market orientation estimated from the firm's 10-K reports. The variable *HIGH _COUNT* is an indicator that is equal to one if the firm is in an industry with an above median number of firms, and zero otherwise. The variable *LOW_PPE* is equal to one if the firm is in an industry with below median gross property plant and equipment, and zero otherwise The variable *LOW_TARIFF* is equal to one if the firm is in an industry with below median tariff rates, and zero otherwise. The value of *AGE* is the number of years since the firm first appeared in Compustat. The value of the variable *DIV* is the firm's annual dividend yield. The variable *LIT* is equal to one if the firm is in an industry that faces high levels of litigation, and zero otherwise. The variable *MTB* is the firm's market to book ratio. The variable *RET* is the average weekly stock return for the fiscal year, *RSIZE* represents the firm's sales dividend by those of its largest industry competitor, and *SCON* denotes the percentage of total industry sales accounted for by the firm's four largest competitors. The variable *SALEG* is the firm's sales for the fiscal year scaled by those of the previous year, *SIZE* the natural logarithm of firm's market value of equity, and *SHARE* the number of common shares outstanding. The estimates include year and industry dummies to control time-invariant fixed year and industry-specific effects. All models include a constant and the *T*-statistics are given in parentheses.

	ROA_t					
	(1)	(2)	(3)	(4)	(5)	(6)
MO_t	0.004	0.032***	-0.038***	0.004	0.032***	-0.038***
	(0.71)	(8.13)	(2.63)	(0.71)	(8.13)	(2.63)
HIGH_COUNT	0.030*			0.030*		
	(1.90)			(1.90)		
$MO_t \times HIGH\_COUNT$	0.057***			0.057***		
	(7.03)			(7.03)		
LOW_PPE		-0.073***			-0.073***	
		(6.13)			(6.13)	
$MO_t \times LOW\_PPE$		0.011			0.011	
		(1.58)			(1.58)	
LOW_TARIFF			-0.092***			-0.092***
			(4.30)			(4.30)
$MO_t \times LOW\_TARIFF$			0.044*			0.044*
			(1.86)			(1.86)
AGE_t	0.113***	0.110***	0.150***	0.113***	0.110***	0.150***

	(22.52)	(22.10)	(15.07)	(22.52)	(22.10)	(15.07)
DIV_t	0.052***	0.052***	0.057***	0.052***	0.052***	0.057***
	(15.48)	(15.52)	(9.96)	(15.48)	(15.52)	(9.96)
LEV_t	-0.049***	-0.058***	-0.085***	-0.049***	-0.058***	-0.085***
	(12.84)	(14.17)	(11.00)	(12.84)	(14.17)	(11.00)
LIT_t	-0.175***	-0.172***	-0.028	-0.175***	-0.172***	-0.028
	(11.95)	(11.62)	(0.90)	(11.95)	(11.62)	(0.90)
MTB_t	-0.117***	-0.113***	-0.217***	-0.117***	-0.113***	-0.217***
	(11.32)	(10.81)	(9.57)	(11.32)	(10.81)	(9.57)
RET_t	0.099***	0.102***	0.129***	0.099***	0.102***	0.129***
	(16.12)	(16.48)	(11.62)	(16.12)	(16.48)	(11.62)
$RSIZE_t$	-0.083***	-0.076***	-0.056***	-0.083***	-0.076***	-0.056***
	(18.34)	(15.96)	(6.53)	(18.34)	(15.96)	(6.53)
$SCON_t$	-0.022**	-0.019**	-0.016	-0.022**	-0.019**	-0.016
	(2.42)	(2.07)	(0.96)	(2.42)	(2.07)	(0.96)
$SALEG_t$	-0.019**	-0.016*	-0.012	-0.019**	-0.016*	-0.012
	(2.04)	(1.73)	(0.80)	(2.04)	(1.73)	(0.80)
$SIZE_t$	0.301***	0.272***	0.264***	0.301***	0.272***	0.264***
	(45.41)	(30.77)	(23.30)	(45.41)	(30.77)	(23.30)
$SHARE_t$	-0.068***	-0.066***	-0.065***	-0.068***	-0.066***	-0.065***
	(13.72)	(13.13)	(7.35)	(13.72)	(13.13)	(7.35)
R^2	0.23	0.23	0.21	0.23	0.23	0.21
N	45,654	45,496	14,138	45,654	45,496	14,138

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

Market Orientation Wordlist

Customer orientation core wordlist

custom_word=['customer', 'customers']

client_word=['client', 'clients']

purchaser_word=['purchaser', 'purchasers']

patron_word=['patron', 'patrons']

subscrib_word=['subscriber', 'subscribers']

policy_word=['policyholder', 'policyholders']

shopper_word=['shopper', 'shoppers']

buyer_word=['buyer', 'buyers']

guest_word=['guest', 'guests']

consumer_word=['consumer', 'consumers']

patient_word=['patient', 'patients']

Customer orientation contextual wordlist

satisf_word=['satisfy','satisfaction','satisfies','satisfactions','satisfying']

fulfill_word=['fulfill', 'fulfillment', 'fulfills', 'fulfillments', 'fulfilling']

content_word=['content', 'contentment', 'contents', 'contenting']

comfort_word=['comfort', 'comforts', 'comforting']

commit_word=['commit', 'commitment', 'committing', 'commits', 'commitments']

faith_word=['faith', 'faiths', 'faithful', 'faithfulness']

cooperat_word=['cooperate', 'cooperation', 'cooperates']

dedicat_word=['dedicate', 'dedication', 'dedicates', 'dedications', 'dedicating']

devot_word=['devote', 'devotion', 'devotes', 'devotions', 'devoting']

need_word=['need', 'needs', 'needing']

requir_word=['require', 'requirement', 'requires', 'requirements', 'requiring']

necess_word=['necessary', 'necessity', 'necessaries', 'necessities']

requist_word=['requisite', 'requisites', 'requisition', ‘requisitions’]

essential_word=['essential', 'essentials']

demand_word=['demand', 'demands', 'demanding']

condition_word=['condition', 'conditions', 'conditioning']

servic_word=['service', 'services', 'servicing']

work_word=['work', 'works', 'working']
help_word=['help', 'helps', 'helping']
assist_word=['assist', 'assistance', 'assists', 'assistances', 'assisting']
aid_word=['aid', 'aids', 'aiding']
car_word=['care', 'cares', 'caring']

target_word=['target', 'targets', 'targeting']
guid_word=['guide', 'guides', 'guiding']
referenc_word=['reference', 'references', 'referencing']
aim_word=['aim', 'aims', 'aiming']
objective_word=['objective', 'objectives']
goal_word=['goal', 'goals']

understand_word=['understand', 'understands', 'understanding']
sens_word=['sense', 'senses', 'sensing']
translat_word=['translate', 'translates', 'translating']
interpret_word=['interpret', 'interprets', 'interpreting']
solv_word=['solve', 'solves', 'solving']
appreciat_word=['appreciate', 'appreciates', 'appreciating']
perceiv_word=['perceive', 'perceives', 'perceiving']

valu_word=['value', 'values', 'valuing']
ideal_word=['ideal', 'ideals']

visit_word=['visit', 'visits', 'visitation', 'visitations', 'visiting']
call_word=['call', 'calls', 'calling']
meet_word=['meet', 'meeting', 'meetings']
engage_word=['engagement', 'engage', 'engages', 'engagements']
experience_word=['experience', 'experiences']

inform_word=['information', 'informs', 'informing']
dat_word=['data', 'datum']
knowledge_word=['knowledge', knowledgeable’]
fact_word=[‘fact’, 'facts']
news_word=['news']
detail_word=[‘detail’, 'details']

communica_word=['communicate', 'communicates', 'communication', 'communications', 'communicating']

channel_word=['channel', 'channels', 'channeling']

discuss_word=['discuss', 'discussion', 'discusses' 'discussions', 'discussing']

examin_word=['examine', 'examination', ' examinations', 'examining']

talk_word=['talk', 'talks', 'talking']

express_word=['express',' expression', 'expresses', 'expressions', 'expressing']

Competitor orientation core wordlist

compet_word=["competition", "competitions", "competitor", "competitors", "competitive", "competitiveness", "compete", "competes", "competing"]

challeng_word=['challenger', 'challengers']

contend_word=['contender', 'contenders']

rival_word=['rival', 'rivalry', 'rivals', 'rivaling', 'rivalrous', 'rivalries]

Competitor orientation contextual wordlist

action_word=['action', 'actions']

act_word=['act', 'acts']

achiev_word=['achieve', 'achieves', 'achievements', 'achievement', 'achieving']

perform_word=['perform', 'performs', 'performance', 'performing']

threat_word=['threat', 'threats', 'threating']

respond_word=['respond', 'responds', 'responding']

react_word=['react', 'reacts', 'reacting']

counter_word=['counter', 'counters', 'countering']

advantage_word=['advantage', 'advantages']

edge_word=[‘edge’]

favor_word=['favor', 'favorable', 'favorableness', 'favors', 'favoring']

superior_word=['superior', 'superiority', 'superiorities']

perferenc_word=['preference', 'preferences', 'preferencing']

gain_word=['gain', 'gains', 'gaining']

develop_word=['develop', 'development', 'develops', 'developments', 'developing']

build_word=['build', 'builds', ‘building’]

evolv_word=['evolve', 'evolves', 'evolving']

improv_word=['improve', 'improves', 'improving', 'improvement', 'improvements']

strength_word=['strength', 'strengths', 'strengthen', 'strengthening']

power_word=['power', 'powers', 'powering']

strong_word=['strong', 'strongest']

robust_word=['robust', 'robustness']

forc_word=['force', 'forces', 'forcing', ‘forceful’, ‘forcefulness’]

strateg_word=['strategy', 'strategies']

program_word=['program', 'programs', 'programing']

plan_word=['plan', 'plans', 'planning']

inform_word=['information', 'informs', 'informing']

dat_word=['data', 'datum']

knowledge_word=['knowledge', ‘ knowledgeable’]

fact_word=[‘fact’, 'facts']

news_word=['news']

detail_word=[‘detail’, 'details']

communica_word=['communicate','communication','communicates','communications','comm
unicating']

channel_word=['channel', 'channels', 'channeling']

discuss_word=['discuss', 'discussion', 'discusses' 'discussions', 'discussing']

examin_word=['examine', 'examination', 'exams',' examinations', 'examining']

talk_word=['talk', 'talks', 'talking']

express_word=['express',' expression', 'expresses', 'expressions', 'expressing']

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