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Abstract

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Keywords: Customer Orientation; Stock Returns; Financial Performance; Trust; Financial Crisis; COVID-19; Textual Analysis; 10-K filings.
JEL Codes: G01, G11, G12.

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1. Introduction

The global financial crisis of 2008-2009 has undermined public and investor trust in corporations, institutions and the financial system (Sapienza, Toldra-Simats, and Zingales, 2013; Lins, Servaes, and Tamayo, 2017; Amiraslani, Lins, Servaes, and Tamayo, 2022). Recent literature suggests that corporate social capital can foster trust, which may increase corporate immunity making firms more able to weather periods of adversity and low market confidence. Albuquerque, Koskinen, and Zhang (2019), for example, document that corporate social responsibility (CSR) activities can reduce a corporation's susceptibility to economic downturns. Ding, Levine, Lin, and Xie (2021) suggest that such CSR activities can enhance loyalty and strengthen bonds between a corporation and its stakeholders (workers, customers) such that they are more willing to support the firm during periods of adversity. Lins et al. (2017) suggest that trust developed through CSR activities provides a form of corporate immunity to the global financial crisis.[1] Notably, this literature highlights the important link between trust, as evidenced by investment in CSR activities, and a firm's stock market performance. We extend this reasoning by showing that a firm's customer orientation, which also fosters trust through customer loyalty and firm reputation, provides an effective protection against severe stock price losses in adverse economic conditions.

Customer orientation entails the active and systematic gathering, sharing and evaluation of market information about a firm's customers to increase customer satisfaction and create superior customer value (Narver and Slater, 1990; Saxe and Weitz, 1982; Kohli and Jaworski, 1990; Reinartz, Krafft, and Hoyer, 2004). Customer orientation is generally aligned with the firm's main marketing function aiming "to discover needs and wants in its target markets and to satisfy those needs more effectively and efficiently than competitors" (Narver and Slater, 1990, p. 1001), resulting in sustained long-term gains and superior financial perfor-

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[1] Likewise, Amiraslani et al. (2022) use a subset of a firm's environmental, social and governance (ESG) activities as a proxy for investment in social capital and find that high social-capital firms benefit from lower bond spreads during the 2008-2009 financial crisis.

mance.[2] Firms placing emphasis on customer orientation maintain a culture geared towards understanding the needs of their customers using various channels. This enables firms to develop capabilities for long-term survival and superior performance (Day, 1994; Morgan, Vorhies, and Mason, 2009). Day and Wensley (1988), Narver and Slater (1990), and Hult and Ketchen Jr (2001) refer to customer orientation as a business philosophy, positing that firms fulfilling their customer needs over time are likely to accrue a sustainable advantage over competitors resulting in higher sales growth, greater market share and improved financial performance.

Customer-oriented policies might also be perceived as efforts to develop internal social capital. Management and employees can affect firm performance through improved customer loyalty, commitment and retention (Garbarino and Johnson, 1999; Kumar et al., 2011). In turn, such efforts nurture customers' trust in the organization (*e.g.*, in the form of customer confidence in the quality and reliability of its products and services), an essential ingredient for a successful firm-customer relationship (Moorman, 1993; Morgan and Hunt, 1994; Garbarino and Johnson, 1999; Huang, 2018).[3] In this vein, Lins et al. (2017) and Amiraslani et al. (2022) postulate the existence of earned trust generated through a firm's investment in social capital that results in economic benefits via enhanced cash flows and pays off during crisis periods when the overall level of trust in corporations and markets suffers a negative shock. Accordingly, one can hypothesize an indirect channel whereby a firm's customer-oriented policies generate trust as customer perceptions of confidence, reliability and commitment help to enhance the firm's cash flow and reputation, especially during adversity periods.

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[2] An extensive literature in marketing documents a significant effect of customer orientation on firm's marketing metrics (Brady and Cronin Jr, 2001; Zhu and Nakata, 2007) and financial performance (Yilmaz, Alpkan, and Ergun, 2005; Auh and Menguc, 2007). Several studies identify various mediating and moderating variables on the customer orientation and firm performance linkage, such as innovation (Huhtala, Sihvonen, Frösén, Jaakkola, and Tikkanen, 2014), market environment and competition, firm size and industry (Harris, 2001; Kumar, Jones, Venkatesan, and Leone, 2011; Pekovic and Rolland, 2016), or ethical leadership and competitive intensity (Feng, Wang, Lawton, and Luo, 2019).

[3] From a firm-customer perspective, Moorman (1993, p. 82) defines trust as "a willingness to rely on an exchange partner in whom one has confidence", while Morgan and Hunt (1994, p. 23) define trust as "the perception of confidence in the exchange partner's reliability and integrity". As noted in Garbarino and Johnson (1999), both definitions highlight the importance of confidence and reliability in the conception of trust.

The customer orientation−trust link is supported by seminal marketing studies by Jackson (1985), Dwyer, Schurr, and Oh (1987), Morgan and Hunt (1994) and Garbarino and Johnson (1999). These studies suggest that consumers maintaining close relationships with the firm have high levels of trust, loyalty and commitment which are central in their attitude and belief formation and are important drivers of their behavioral intentions to remain with the firm. Moreover, Walter and Ritter (2003), Saparito, Chen, and Sapienza (2004), and Griffith and Harvey (2004) show that customer orientation policies help a firm to attain a sustainable advantage through forming a trusted and committed relationship with its customers. In a similar vein, Luo, Hsu, and Liu (2008) and Frasquet, Cervera, and Gil (2008) find that customer orientation is positively related to customers' trust and enables various advantages of trust-based relationships. For these firms, committed and trusted customers are an invaluable intangible asset and a key driver of future profitability. A key tenet of our paper is that customer orientation represents a form of corporate social capital that engenders customers' trust and cushions the firm against adverse economic contingencies.

We develop a large-scale textual measure of customer orientation by analyzing management's disclosure in 10-K filings following the methodology in Andreou, Harris, and Philip (2020). These authors develop−and empirically validate−a dictionary featuring lexical items that underpin the corporate traits measured by the MKTOR scale of Narver and Slater (1990), a renowned and widely applied survey instrument for measuring market orientation. Accordingly, for the needs of our study, we employ their dictionary consisting of core and contextual lexical items to capture firms' emphasis on customer needs, wants and expectations. Core lexical items include words such as *customer, consumer, client, buyer, guest, purchaser, patient, patron, policyholder, subscriber*, and *shopper*. Contextual lexical items include words such as *satisfy, commit, need, service, target, understand, value, visit, inform, communicate*, etc. The textual measure of customer orientation (CUSTOR) is defined as the proportion of core-contextual word pairs to the total number of words in a 10-K filing. Aiming to enhance precision and capture the relevant information content of customer ori-

entation, a core-contextual word pair is taken into account only when a contextual word occurs within a span of four words of one of the core words.

Our main research question is whether customer orientation is an important determinant of a firm's stock market performance in periods of adversity. In this vein, we use crisis-period stock returns to examine whether a firm's customer orientation policies provide an effective cushion against economic downturn states triggered by exogenous negative shocks. Specifically, we consider the impact of customer orientation on raw and abnormal stock returns during the financial crisis of 2008-2009 and during the recent COVID-19 (hereafter, COVID) pandemic crisis. In both cases, we relate the crisis-period stock returns to the CUSTOR measure estimated at the end of 2006 for the financial crisis and at the end of 2017 for the COVID crisis, to guard against the possibility that firms may have previously adjusted their customer orientation policies in anticipation of the two crises.

Overall, our results support a strong positive relation between a firm's customer orientation and stock returns during these two adversity periods. Specifically, portfolio-level analysis reveals that high-CUSTOR firms experienced a less severe drop in stock returns than low-CUSTOR firms during the financial crisis of 2008-2009; on average, they outperformed the low-CUSTOR firms by 1.54% in raw returns and 2.27% in abnormal returns per month. Likewise, during the COVID crisis, high-CUSTOR firms outperformed low-CUSTOR firms by 4.70% in raw returns and 5.24% in abnormal returns per month.

These portfolio-level findings persist and are economically significant in regression analysis after controlling for various crisis-period return predictors used in prior literature (*e.g.*, Lins et al., 2017). For instance, a one-standard-deviation increase in CUSTOR at the end of 2006 is associated with higher raw (abnormal) returns of 2.90% (5.40%) with a t-statistic of 3.91 (3.96) during the financial crisis, whilst a one-standard-deviation increase in CUSTOR at the end of 2017 is associated with a 2.00% higher raw or abnormal returns with t-statistics exceeding 3.06 during the COVID crisis. The positive CUSTOR-returns relation during the two adversity periods is robust to the way that we measure CUSTOR, and remains statisti-

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cally strong to the timing when CUSTOR and the various controls are estimated. Further tests using the post-crisis period from 2009 to 2019 show that the positive impact of CUSTOR on stock returns is absent during normal times, highlighting the importance of customer orientation as a driver providing resilience during adversity periods.

Notably, the positive impact of customer orientation on financial crisis returns remains significant after controlling for a firm's CSR activities. Servaes and Tamayo (2013) note that CSR deals with social objectives and broader stakeholders (other than shareholders), such as customers, employees, and the public (see, also, Turker, 2009). Extant literature has shown that CSR activities strengthen customer loyalty (Albuquerque et al., 2019; Ding et al., 2021). Ergo, there might be an overlap between a firm's CSR activities and its focus on customer-oriented policies. Our results document a robust positive relation between CUSTOR and financial crisis stock performance even after controlling for CSR, thus capturing the *incremental* effect of customer orientation on stock returns during market downturn periods beyond the effect of trust engendered through CSR activities. Importantly, the coefficient of CUSTOR is substantially larger than that of CSR while in some model specifications CSR loses statistical significance altogether, implying a higher and more persistent economic importance of customer orientation during adversity periods. Although both CUSTOR and CSR help provide protection during periods of adversity, our results suggest that social capital fostered by customer orientation carries a much larger and more statistically significant loading during financial crises, compared to that fostered through CSR activities.

To further examine the mechanism through which customer orientation impacts stock performance during crisis periods, we document a similar positive impact of customer orientation on firms' sales growth and profitability when the economy suffers a negative shock. These findings help illuminate the channel through which customer orientation affects stock returns during crisis periods, supporting the notion that customer orientation policies help provide a corporate safeguard during adverse economic conditions.

Our paper contributes to extant literature in three important ways. First, we show that

firms entering each crisis period with high customer orientation earn higher stock returns and exhibit higher operating profitability. These findings suggest that firms with a focus on customer-oriented policies enjoy economic benefits from the earned customer trust resulting in superior raw and market-adjusted stock performance during crisis periods. More broadly, our findings suggest that customer orientation is value-enhancing for investors during adversity periods, and, as such, our work contributes to the literature that examines the extent to which trust between a firm and its stakeholders impacts firm performance (Lins et al., 2017; Albuquerque et al., 2019; Albuquerque, Koskinen, Yang, and Zhang, 2020; Amiraslani et al., 2022). Our work also contributes to a burgeoning literature that investigates firm characteristics that provide corporate immunity during economic adversity periods (Acharya and Steffen, 2020; Ding et al., 2021; Fahlenbrach, Rageth, and Stulz, 2021; Ramelli and Wagner, 2020).

A second contribution lies in introducing customer orientation into the realm of finance studies. Prior research, primarily in the field of marketing, has examined the positive moderating effects on the customer orientation and performance relation (Ben Brik, Rettab, and Mellahi, 2011; Arshad, Mansor, Othman, et al., 2012; Kiessling, Isaksson, and Yasar, 2016), the beneficial impact of CSR on customer trust (Pivato, Misani, and Tencati, 2008; Raza, Saeed, Iqbal, Saeed, Sadiq, and Faraz, 2020; Martínez and Del Bosque, 2013; Luu, 2019), and the importance of customer loyalty in mediating the CSR-performance relation (Servaes and Tamayo, 2013). We extend this literature by introducing customer orientation as an understudied yet important determinant of firm financial performance, potentially opening-up a new research avenue at the intersection of finance and marketing. In this vein, our study also responds to the call by Lins et al. (2017) to identify other channels through which firms can build social capital and increase trust.

Third, our paper contributes to the literature focusing on intangible assets with a positive impact on stock returns. Edmans (2011) suggests that the market fails to incorporate intangible assets fully into stock valuations even when these assets are verified by credible external

stakeholders (see, also, Lev and Sougiannis, 1996; Chan, Lakonishok, and Sougiannis, 2001; Deng, Lev, and Narin, 1999; Aboody and Lev, 1998). More recently, Barth, Li, and McClure (2022) call for research that extends our understanding of "new economy firms" with high intangible assets and growth opportunities, and how information can be improved to meet investors' needs. Admittedly, a firm's customer orientation can be discerned from publicly available information such as 10-K filings accessible from the EDGAR database, a primary source of information routinely scrutinized by investors, creditors, and other financial market participants. In this regard, we highlight customer orientation as a neglected intangible asset that is positively valued by investors, helping provide corporate immunity in adversity periods when public trust in corporations and the capital markets erodes.

The remainder of the paper is organized as follows. Section 2 describes the data and presents our measurement of customer orientation. Section 3 reports our main empirical results, documenting a positive effect of customer orientation on stock returns during adversity periods, and presents robustness tests and additional analyses. Section 4 concludes.

2. Data and methodology

2.1. Sample and variables

We collect stock and annual fundamental data for all publicly-traded nonfinancial firms from CRSP and Compustat, respectively. As in Lins et al. (2017), we remove micro-cap stocks with a market capitalization below $250 million as of the fiscal year end prior to December 2007 for the financial crisis, and prior to December 2019 for the COVID crisis. Stocks are also excluded from crisis period analyses if fewer than 12 months of data are available to estimate the four-factor loadings as per the Fama and French (1993) and Carhart (1997) models. Notably, our results remain largely unchanged if any of these filters are relaxed.

In our baseline analysis, the global financial crisis of 2008-2009 is considered as lasting

from August 2008 to March 2009, in line with Lins, Volpin, and Wagner (2013), Lins et al. (2017), Amiraslani et al. (2022), and Sapienza et al. (2013). In robustness, we also consider the period from September 2008 (Lehman Brothers' collapse) to June 2009. For the COVID crisis, we focus on the period from January 2020 to April 2020. January 2020 is the starting month when the virus outbreak was officially declared by WHO, and April 2020 is used as the ending month when the S&P-500 index re-entered a bull market after reaching its lowest level in March 2020.

We estimate firms' stock market performance over these crisis periods using two measures: (*i*) buy-and-hold raw return (BH-RAW), the cumulative raw return separately computed over each crisis period, and (*ii*) buy-and-hold abnormal return (BH-ABN), the cumulative abnormal return over each crisis period defined as the difference between the raw stock return and the expected stock return. The expected stock return is the market model-adjusted return, whereby the market model is estimated over a 60-month time window ending one month before the start of the crisis period using the CRSP value-weighted index as the market proxy. Unless otherwise specified, the 60-month estimation window ends in July 2008 for the financial crisis and in December 2019 for the COVID crisis. Accordingly, in the baseline analysis, BH-RAW and BH-ABN span the period from August 2008 to March 2009 for the financial crisis, and from January 2020 to April 2020 for the COVID crisis. We follow Lins et al. (2017) winsorizing these returns at the 1st and 99th percentiles to avoid problems emerging from abrupt stock price movements during the crises. Notably, our results remain unchanged if this winsorization is not applied.

Our control variables cover three categories (definitions and details of their computation are given in the Appendix). The first category contains stock-related characteristics and known predictors of stock returns. Accordingly, we control for Size, Book-to-Market, Profitability and Asset Growth in line with Fama and French (2015) and Hou, Xue, and Zhang (2014).[4] We include a negative Book-to-Market dummy (Negative B/M) and Id-

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[4] The results remain largely unaffected if we include Sales Growth rather than Asset Growth.

iosyncratic Risk accounting for stocks that are likely to be distressed and volatile. Also, following Lins et al. (2017), we control for firm factor loadings based on the Fama and French (1993) three-factor model and the momentum factor of Carhart (1997). The second category includes variables reflecting the firm's intangibles and financial condition, namely, R&D intensity, Advertising intensity, Cash Holdings, and Long-Term Debt. Third, we control for corporate social responsibility (CSR) following the computations in Lins et al. (2017) using data collected from the MSCI ESG Stats Database (formerly known as KLD). Based on prior studies, CSR is perceived as a multidimensional control variable for social capital and overall trust between the firm and its major stakeholder groups (*e.g.*, Lins et al., 2017; Albuquerque et al., 2019; Amiraslani et al., 2022). To reduce the impact of extreme outliers, all continuous variables are winsorized at the 1st and 99th percentiles.

After merging the data sets, our sample (with all baseline control variables available) consists of 1,675 industrial firms for the financial crisis and 1,529 firms for the COVID crisis. This sample is comparable to prior studies. For example, Lins et al. (2017) report that after combining nonfinancial firms with sufficient data coverage on the CRSP and Compustat databases and firms on the ESG Stats database, they obtain a sample of 1,673 nonfinancial firms for which all explanatory variables are available for the crisis period.

2.2. Textual measure of customer orientation

Customer orientation reflects the organizational culture and climate that promote behaviours enabling the firm to create superior value propositions for its customers. From a marketing viewpoint, it is viewed as a source of sustainable competitive advantage (Kohli and Jaworski, 1990; Narver and Slater, 1990; Homburg and Pflesser, 2000). In this respect, marketing research posits that customer orientation represents firm behavioural traits that seek to understand and meet customers' needs, wants and desires. Based on this notion and following Andreou et al. (2020), we conduct textual analysis to measure customer orientation from the 10-K filings archived for a broad cross-section of US-listed firms in the SEC

Edgar database. Andreou et al. (2020) rely on the survey-based MKTOR scale proposed by Narver and Slater (1990) to create bags of *core* and *contextual* words used by firms to disclose their customer orientation policies. Core words capture a firm's emphasis on customer orientation, while contextual words capture the firm's behaviour and attitudes towards customer satisfaction, needs and values. The customer orientation *core words* include the following lexical items: *customer/s*, along with its synonyms *consumer/s, client/s, buyer/s, guest/s, purchaser/s, patient/s, patron/s, policyholder/s, subscriber/s, shopper/s*. The customer orientation *contextual words* include the following lexical items: *commit/ment, need/s, serv/ice/ing, target/s, understand/ing, value/s, visit/ation/ing/s, inform/ation, communi-cat/e/ion*. The synonyms and stems of these contextual words are also used. For a full list of the core and contextual words, refer to the Appendix. The bag of words underlying customer orientation is formed by pairing core words with contextual words. Forming customer core-contextual word pairs enhances the precision of the measure and enables better gauging of the firm's focus and behaviour toward its customers.

We use all possible core-contextual word pairings relating to customer orientation and count the occurrences where a contextual word appears within a span of four words (-4 and +4) from one of the core words and normalize the count based on the firm's 10-K filing length. While counting the relevant lexical items, we exclude cases where "no", "non", "not", "less", "few" or "limited" precede the core word by four or fewer words. Specifically, our customer orientation measure is estimated as:

$$\text{CUSTOR} = \frac{\text{Number of core \& contextual word pairs}}{\text{Total number of words}} \quad (1)$$

Prior literature mainly uses proxies of customer orientation from surveys or interviews conducted with customers, managers, employees or industry experts. For instance, Appiah-Adu and Singh (1998) rely on a UK sample of 101 small and medium-sized enterprises, Brady and Cronin Jr (2001) collect data from 649 US respondents from the services industry,

Zhu and Nakata (2007) interview senior marketing executives from 189 US-based strategic units, while Blocker, Flint, Myers, and Slater (2011) create a customer orientation variable using data from 800 business consumers. These measures, albeit being informative of a firm's customer-oriented corporate traits within specific industries, rely on small, sometimes outdated and time-unvarying samples, and are possibly susceptible to errors and statistical biases. In contrast, exploiting the advantages of the bag-of-words method of textual analysis as delineated in prior studies (*e.g.*, Audi, Loughran, and McDonald, 2016; Balvers, Gaski, and McDonald, 2016; Andreou et al., 2020), we extract a firm's customer orientation from a large corpus of 10-K filings that contain reliable and up-to-date information conveyed by managers about the firm's business, environment, risk factors, prospects, financial conditions and outcomes. The CUSTOR measure we use in this study broadly reflects the firm's insights regarding customer orientation through management disclosures. The study by Andreou et al. (2020) provides empirical evidence supporting the construct validity of CUSTOR and its applicability in longitudinal studies.

For comparability purposes, we present results demonstrating that some important properties of CUSTOR are in accordance to the ones theorized by the marketing literature (Kohli and Jaworski, 1990; Narver and Slater, 1990) and in line with the construct validity tests in Andreou et al. (2020). First, we investigate whether CUSTOR values correlate with the industry sector. In this vein, Figure 1 illustrates the distribution of CUSTOR across the Fama-French 48 industries at the end of 2006 in subfigure (a) for the financial crisis, and at the end of 2017 in subfigure (b) for the COVID crisis. As expected, the highest CUSTOR values appear in industries that heavily rely on customer relations, such as the ones of Business Services, Healthcare, Telecommunications, Computers and Electronic Equipment. The lowest CUSTOR values appear in industries that are regulated or operate in less competitive environments and depend less on customer relations, such as Precious Metals, Oil, Smoke and Coal. Second, we investigate whether CUSTOR is a persistent firm trait. Accordingly, in the Internet Appendix we report the mean annual transition probabilities of CUSTOR.

As expected, we find that firms in the lowest quintile of CUSTOR in 2006 have a 75% chance of remaining in the lowest CUSTOR quintile in 2007, while firms in the highest quintile in 2006 remain in that quintile in 2007 with a probability of 76%. The transition probabilities of all diagonal elements are also notably high (circa 50%). Similar results are observed for the matrices tabulating the transition probabilities between 2006-2008 and 2006-2009.

[**Insert Figure 1, here**]

In the empirical tests, discussed subsequently, CUSTOR is estimated at the end of 2006 (nearly two years prior to the start of the financial crisis) and at the end of 2017 (two years prior to the outbreak of the COVID pandemic) to ensure that firms do not adjust their customer orientation focus in anticipation of the market downturn.[5] All of our results remain unchanged if we instead measure CUSTOR at different years. For example, the Internet Appendix shows that our results remain similar if the pre-financial crisis CUSTOR is measured at the end of 2007.

3. Empirical analysis

Table 1, Panel A reports summary statistics and correlations for all main variables over the financial and COVID crisis periods. In line with Lins et al. (2017), during the financial crisis we find a negative mean buy-and-hold raw return (BH-RAW) of -40.5% and a positive mean buy-and-hold abnormal (BH-ABN) return of 9.9%. Regarding the COVID pandemic crisis, the mean BH-RAW is also negative (-19.9%), while the mean BH-ABN is -8.2%. During the financial crisis, mean customer orientation (CUSTOR) is 0.066 and mean CSR is -0.241, in line with other studies (*e.g.*, Lins et al., 2017; Andreou et al., 2020).[6] CUSTOR

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[5] Based on the WHO COVID-19 timeline, the first official coronavirus incidence was reported on December 31, 2019 when the Wuhan Municipal Health Commission in China reported a cluster of cases of pneumonia in Wuhan, Hubei Province.

[6] The MSCI ESG Stats Database has suspended data provision after 2013 of each firm's community, diversity, employee relations, environment and human rights ratings. Ergo, we cannot estimate the CSR score for the COVID crisis in line with Lins et al. (2017) that forms the basis of our CSR computation during the financial crisis period.

during the COVID crisis is 0.053, lower than during the financial crisis. The summary statistics of the control variables are similar to those reported in prior studies.

Table 1, Panel B reports the Pearson correlation coefficients among the key variables. The lower triangle reports the correlation coefficients during the financial crisis and the upper triangle during the COVID crisis. All variables display low correlations, indicating the absence of collinearity issues. Interestingly, the correlation between CUSTOR and CSR during the financial crisis is 0.09, implying these two measures share low commonalities and possibly convey different information pertaining to a firm's social capital and trust.

[**Insert Table 1, here**]

In what follows, we present several empirical tests to assess the relation between customer orientation and stock market performance during the two adversity periods. We start with univariate portfolio-level analysis and then perform multivariate cross-sectional regressions controlling for various firm characteristics and risk factors. Finally, we discuss a set of robustness tests and additional analyses.

3.1. Univariate portfolio analysis

We examine the association between customer orientation and stock returns in a univariate portfolio setting during the above two adversity periods. Starting with the financial crisis, we form quintile portfolios by ranking individual stocks based on their pre-crisis CUSTOR value as of 2006, where quintile 1 contains the portfolio containing the low-CUSTOR stocks and quintile 5 features the portfolio containing the high-CUSTOR stocks. Next, we compute the value-weighted average monthly returns of the five quintile portfolios, as well as the value-weighted average monthly returns of the spread portfolio $H - L$, which represents the difference in the portfolio returns across extreme quintiles (*i.e.*, high- *vs.* low-CUSTOR firms). We test the statistical significance of the spread portfolio using the Newey and West (1987) adjusted t-statistic.

Table 2, Panel A reports the average monthly raw returns and Panel B the average monthly abnormal returns for the portfolios across the five CUSTOR quintiles. Over the financial crisis period from August 2008 to March 2009, all CUSTOR portfolios show negative average monthly raw returns. The high-CUSTOR firms experience a value-weighted average monthly return of -3.31% and show more resilience compared to the low-CUSTOR firms (that generate a monthly return of -4.85% on average). Accordingly, the $H - L$ portfolio suggests that high-CUSTOR firms experience a less severe decline in stock returns of 1.54% per month (with a t-statistic of 2.09) during the financial crisis, compared to low-CUSTOR firms. We also find a pronounced outperformance of high-CUSTOR firms for the COVID period. Specifically, the value-weighted average monthly raw performance of high-CUSTOR firms during the COVID crisis is 1.33%; as seen from the $H - L$ portfolio they outperform the low-CUSTOR firms by 4.7% on average per month (with a t-statistic of 4.90). A similar pattern is observed for abnormal returns, with the value-weighted average abnormal return differential between high- $vs.$ low-CUSTOR firms equal to 2.27% (with a t-statistic of 3.46) for the financial crisis, and 5.24% (with a t-statistic of 3.61) for the COVID crisis.

Overall, the univariate portfolio results in Table 2 support a positive CUSTOR-returns relation, whereby firms with high customer orientation consistently earning higher average returns than firms with low customer orientation during the two adversity periods. These findings lend credence to the idea that firms with more customer-focused policies are more resilient as a result of maintaining long-term trusted relationships with their customers, translating to a better stock market performance in periods when the overall level of investors' trust and confidence in the stock market experiences a negative shock.

[Insert Table 2, here]

3.2.   *Cross-sectional regression analysis*

We next run cross-sectional regressions of buy-and-hold stock returns measured over the crisis period from August 2008 to March 2009 on pre-crisis customer orientation. Our base-

line model specification includes CSR, standard stock return predictors, firm fundamental characteristics and factor-loadings. Accounting-based control variables are estimated at the end of 2007, market-based characteristics are computed prior to July 2008, and the four-factor loadings are obtained using 60 months prior to the start of the financial crisis. We also include industry dummies to control for a differential impact of CUSTOR across industries. We use heteroskedasticity-consistent standard errors clustered at the firm level, and for the ease of interpretation we report standardized coefficients.

The regression results for the financial crisis are shown in Table 3. Models (1) and (2) report results when the dependent variable is the firm's buy-and-hold raw returns (BH-RAW), while models (3) and (4) report results when the dependent variable is the firm's buy-and-hold abnormal returns (BH-ABN). As shown in the univariate models (1) and (3), high-CUSTOR firms earn higher cumulative returns during the financial crisis. A one-standard-deviation increase in CUSTOR in 2006 leads on average to higher financial crisis raw (abnormal) returns by 3.7% (7.1%), with a t-statistic of 4.98 (5.25). Further, the customer orientation effect on financial crisis returns remains strong and statistically significant after inclusion of various important determinants of stock returns. As shown in the multivariate models (2) and (4), the economic impact of CUSTOR on the buy-and-hold raw (abnormal) returns during the financial crisis is more than two (three) times as large as the impact of CSR. Particularly, CSR becomes nonsignificant in model (4), whilst CUSTOR maintains a high t-statistic (equal to 3.96), with a one-standard-deviation increase in CUSTOR leading to 5.4% higher abnormal returns.[7]

[**Insert Table 3, here**]

The weak CSR-returns relation we report in Table 3, particularly in model (4), is at odds

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[7] In robustness tests, to ensure that CUSTOR carries different information content from that of other text-based variables extracted from 10-K filings (broadly used in other studies), we additionally control for competitor orientation (Andreou et al., 2020), percentage of positive and negative sentiment words (Loughran and McDonald, 2011), 10-K filing readability (Loughran and McDonald, 2014), and percentage of uncertainty words (Loughran and McDonald, 2011). None of these textual measures are able to explain the CUSTOR effect on financial crisis stock returns. These results are reported in the Internet Appendix.

with the evidence in Lins et al. (2017) who report that high-CSR firms outperform low-CSR firms during the crisis by about 9% in terms of abnormal cumulative returns. In the Internet Appendix, we conduct three tests to look more closely at the relation between CUSTOR and CSR and show that customer orientation has a differential predictive power for financial crisis returns. First, we consider bivariate portfolio-level analysis, where stocks are sorted into quintile portfolios based on CSR measured at the end of 2006 and then, within each CSR portfolio, are further sorted into quintile portfolios based on CUSTOR (also measured at the end of 2006). Next, for each of the five CSR quintiles, we compute the abnormal return spread between high- *vs.* low-CUSTOR portfolios, *i.e.*, the spread portfolio $H - L$ as in Table 2. Overall, the results support that a positive CUSTOR-returns relation is evidenced across most CSR quintiles, whilst the return on $H - L$ portfolio is positive and statistically significant even for the high-CSR quintile.

Second, we re-estimate the models of Table 3 using the residual values of CUSTOR, which are estimated from a regression that is used to orthogonalize CSR and CUSTOR. These cross-sectional regression results reveal that the effect of the orthogonalized-CUSTOR on financial crisis returns remains economically large and statistically significant. For instance, the cross-sectional regression re-estimates (in the spirit of model (4) as per Table 3) show that the coefficient of orthogonalized-CUSTOR is 4.4% with a high t-statistic equal to 3.96, whilst the coefficient of CSR is 1.9% with a marginal t-statistic equal to 1.72. Admittedly, the economic impact of CUSTOR on the buy-and-hold abnormal returns during the financial crisis is more than two times as large as the impact of CSR, revealing a negligible effect of CSR on the positive CUSTOR-return relation.

Third, we re-estimate the models of Table 3 by including variables capturing the five CSR-related categories that we have considered in computing the CSR score, namely, Community, Diversity, Employee Relations, Environment, and Human Rights. Ergo, instead of using the net CSR measure that adds strengths and subtracts concerns of these five categories, we estimate cross-sectional regressions where we separately include each of the five CSR-

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related categories, as well as models where all five categories are included simultaneously. Specifically, the cross-sectional regression estimates (in the spirit of model (4) as per Table 3) where all five CSR-related categories are included reveal two interesting results. One is that out of the five CSR-related categories, the coefficients of Community, Diversity and Environment are statistically nonsignificant, whilst Employee Relations carries a coefficient of 1.8% (t-statistic equal to 1.69) and Human Rights carries a coefficient of 2.6% (t-statistic equal to 2.72). This result reveals that not all CSR activities contribute equally to generating social capital and trust. More importantly, we find that a one-standard-deviation increase in CUSTOR in 2006 leads on average to higher financial crisis abnormal returns by 5.4% (with a t-statistic of 3.93), which is almost identical to the result reported in model (4) of Table 3. Thus, the break-down of the CSR score into its components does not affect in any way the strong positive CUSTOR-returns relation.[8]

Altogether, the results reported in Table 3 and in the Internet Appendix suggest that a firm's emphasis on customer orientation policies has a strong and significant explanatory power for financial crisis stock returns, beyond that of CSR, which is unlikely to be driven by previously documented return predictors.

The recent COVID pandemic crisis provides another suitable environment to test whether fostering social capital through trusted relationships with customers provides firms with an effective safeguard and resilience during a crisis period. In the spirit of Table 3, we estimate cross-sectional regression models where the dependent variable is the firm's buy-and-hold raw and abnormal returns from January to April of 2020. CUSTOR is estimated at the end of 2017 to ensure that firms do not adjust their policies by catering to customers' needs anticipating the COVID crisis. Accounting-based control variables are estimated at the end of 2018, market-based characteristics are computed prior to December 2019 and the

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[8] Additionally, in the Internet Appendix we provide results supporting a statistically significant and positive CUSTOR-returns relation with the inclusion of variables measuring a firm's pre-crisis levels of environmental and social (E&S) elements of ESG. Specifically, the cross-sectional regression estimates of the specification in the spirit of model (4) as per Table 3, where instead of CSR we use a firm's E&S index as computed in Amiraslani et al. (2022), shows that CUSTOR carries a statistically significant coefficient equal to 5.5%, whilst the coefficient of the E&S index is nonsignificant.

four-factor loadings are obtained using 60 months prior to the start of the COVID crisis.

Table 4 reports the findings from these cross-sectional regressions. Results in models (2) and (4) show that firms experiencing a one-standard-deviation increase in CUSTOR at the end of 2017 earn 2% higher raw and abnormal returns (with t-statistics of 3.30 and 3.06, respectively) in the COVID crisis period. Consistent with the findings in Ding et al. (2021), larger firms with bigger cash holdings and lower debt exhibit better stock market performance during the COVID crisis. Yet, these firm characteristics do not attenuate the strong positive CUSTOR-returns relation. Altogether, the COVID period results lend further credence to our prediction regarding a positive CUSTOR-returns relation in adversity periods.

[**Insert Table 4, here**]

Next, we investigate the importance of customer orientation as a characteristic that makes a firm more immune to adverse market conditions. In doing so, we take motivation from the study of Ding et al. (2021) who find that firms' pre-2020 corporate characteristics had shaped their stock price reactions during the COVID period. Specifically, they report that certain pre-pandemic financial conditions enable firms to attain better stock price performance. Accordingly, we create a composite corporate immunity score (CIS) by combining four variables which, based on the study of Ding et al. (2021), are boosting corporate immunity during the pandemic: (i) Cash Holdings, measured as the ratio of cash and short-term investments over total assets, (ii) Total Debt, measured as the ratio of total long-term and current debt over total assets, (iii) Matured Debt, measured as the ratio of long-term debt maturing during the next year over total assets, and (iv) Profitability, measured as the ratio of net income over total assets. More specifically, at the end of 2006 (pre-financial crisis period) or 2017 (pre-COVID period) we sort stocks independently into decile portfolios based on each of four characteristics and stocks receive a score (ranging from 1 to 10) according to their decile portfolio ranking. On the upper extreme, a stock receives a score of 40 signifying the highest level of corporate immunity if it happens to have the highest Cash Holdings, lowest Total Debt, lowest Matured Debt, and highest Profitability. On the lower extreme,

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a stock receives a score of 4 signifying the lowest level of corporate immunity if it happens to have the lowest Cash Holdings, highest Total Debt, highest Matured Debt, and lowest Profitability. Next, we define each stock's CIS by summing up all scores resulting from the decile portfolio rankings across the four characteristic-based portfolios.

Table 5, Panel A reports the results for the financial crisis period, and Panel B for the COVID period. The results in model (1) of each panel document a statistically significant and positive relation between CUSTOR and CIS after the inclusion of the control variables, four-factor loadings and industry dummies. Models (2)-(5) show subsample cross-sectional regression results when the data are arrayed into firms with Low (below-median CIS) *vs.* High (above-median CIS) corporate immunity scores. It is worth noting that the regression specifications also control for corporate immunity characteristics such as Profitability, Long-Term Debt and Cash Holdings in the spirit of Ding et al. (2021). Intriguingly, we find that the positive CUSTOR-return relation during periods of financial adversity is more pronounced—both in terms of coefficient magnitudes and statistical significance—among firms which feature low levels of corporate immunity. For instance, when considering the firm's buy-and-hold abnormal returns (BH-ABN) during the financial crisis as the dependent variable, the coefficient of CUSTOR in model (3) for the Low-CIS sample is equal to 0.063 (t-statistic equal to 3.34) and is almost two times as large as the one in model (5) for the High-CIS sample that is equal to 0.035 (t-statistic equal to 1.73).

[**Insert Table 5, here**]

3.3. Robustness tests and additional analyses

The results presented in Tables 3 and 4 evidence a positive and economically significant relation between CUSTOR and stock returns during the financial and COVID crisis periods. In this section, we provide a series of robustness tests with emphasis on the financial crisis period, specifically: (*i*) measuring the explanatory variables at the end of 2006 (instead of at the end of 2007), (*ii*) defining the financial crisis period to span the period from September

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2008 (collapse of Lehman Brothers) to June 2009 (instead of from August 2008 to March 2009), and (*iii*) employ a different textual operationalization for CUSTOR.

In Table 6, models (1) and (4) present the results for financial crisis raw and abnormal returns using the baseline model specification of Table 3, with all control variables estimated at the end of 2006. In models (2) and (5) the buy-and-hold raw and abnormal returns are, respectively, estimated using the period from September 2008 to June 2009. Finally, in models (3) and (6) we estimate CUSTOR using an alternative word list to ensure that our results are not driven by the definition of CUSTOR following the core-contextual pairing of Andreou et al. (2020). Specifically, in the spirit of Eq. (1), we re-estimate CUSTOR at the end of 2006 using the word list of Zachary, McKenny, Short, and Payne (2011) that includes 31 lexical items: *attendee, buyer, buying, client, clientele, consume, consumer, customer, emptor, habitue, market, marketer, patron, patronage, patronize, patronized, purchase, purchased, purchaser, purchasing, shopper, spectator, subscribe, subscribed, subscriber, subscribing, user, vend, vended, vendee, visitor.*[9] Collectively, the results in Table 6 show that, irrespective of the model specification, there is strong evidence across all models supporting a positive relation between CUSTOR and stock performance during the financial crisis.

[**Insert Table 6, here**]

As firms with CUSTOR estimates tend to be clustered in certain industries as shown in Figure 1, in the Internet Appendix we perform additional robustness tests to ensure that the CUSTOR effect on stock returns during adversity periods is not an industry-specific phenomenon. First, we show that the mean CUSTOR, measured at the end of 2006 and 2017, is positively related to the mean buy-and-hold abnormal returns of 100 randomly created portfolios during the financial and COVID periods, respectively. The randomized portfolio results confirm that the positive relation between CUSTOR and abnormal returns

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[9] We also test the robustness of our results to the alternative CUSTOR operationalization around the COVID crisis and report quantitatively similar findings in the Internet Appendix.

is not driven by unobserved characteristics pertaining to the industry that a firm is operating in. Second, we run a series of regression models using industry-adjusted CUSTOR and industry-adjusted crisis-period returns, during both the financial and COVID crises. The industry-adjusted CUSTOR is calculated as the difference between a firm's CUSTOR value and median industry CUSTOR value. The industry-adjusted crisis-period (abnormal) returns are computed as the raw cumulative return over the corresponding crisis period minus the expected stock return, as predicted by the market model augmented with industry value-weighted returns.[10] The results of this analysis continue to support a strong positive CUSTOR-returns relation after accounting for the industry effects through the adjustment of our key variables.

Table 7 sheds further light on the economic magnitude of the CUSTOR effect during the financial crisis and examines the difference in financial crisis returns between extreme CUSTOR portfolios. To this end, we re-estimate the models of Table 3 with CUSTOR defined as a series of binary variables created on the basis of portfolio sorts. Specifically, we form quintile portfolios by ranking individual stocks based on their pre-crisis CUSTOR value as of 2006, whereby quintile 1 features the portfolio containing the low-CUSTOR stocks and quintile 5 features the portfolio containing the high-CUSTOR stocks. Next, we define CUSTOR Quintile 2 (3, 4, 5) to be a binary variable that is set equal to one if a stock is assigned to CUSTOR quintile 2 (3, 4, 5), and zero otherwise. As shown in Table 7, the baseline model specification is re-estimated by including the binary variables resulting from the quintile sortings (CUSTOR Quintile 1 featuring the stocks in the lowest CUSTOR quintile is omitted and forms the reference group).[11] Results show a clear pattern of economically higher financial crisis returns for the high-CUSTOR firms, with stocks in the highest CUSTOR quintile consistently outperforming stocks in the lowest CUSTOR quintile by 11.9% (9.8%) on a raw-return basis and 22.5% (18.2%) on an abnormal-return

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[10] Value-weighted returns on 48 industry portfolios are downloaded from Kenneth French's website.

[11] This model specification also helps to preclude the possibility of a measurement error with respect to the operationalization of customer orientation following Eq. (1).

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basis when control variables are excluded (included). These findings further corroborate the positive CUSTOR-returns relation, indicating that the effect of a firm's customer orientation on financial crisis stock returns is more pronounced as the level of customer orientation increases.

[**Insert Table 7, here**]

Finally, we provide evidence to preclude the possibility that the results in Tables 3 and 4 merely indicate a mispricing effect. For CUSTOR to feature a trait offering stock price resilience when the overall level of trust in corporations and markets suffers a negative shock, our expectation is that a strong positive CUSTOR-returns relation should prevail *only* during adversity periods, whilst it should be negligible during normal times. In this vein, Table 8 reports cross-sectional regression estimates for the relation between CUSTOR and buy-and-hold raw returns spanning comparable time windows outside the two adversity periods, specifically the periods spanning from August of year t to March of year $t + 1$, whereby $t \in (2009, 2010, ..., 2018)$. Starting from 2009 and ending in 2019, we relate the firm's buy-and-hold raw returns to its CUSTOR that is measured two years before the start of the return estimation, *e.g.*, for buy-and-hold raw returns spanning from August 2009 to March 2010 we estimate CUSTOR at the end of 2007. In this regard, we define 10 time windows featuring normal periods that reside between the financial and COVID crises. Regarding the control variables, financial-based characteristics are computed one year before the start of the return estimation, whilst stock-related variables and four-factor loadings are computed using monthly data before July of year t. For comparability purposes, we exclude the CSR variable from all models as the data become unavailable after 2013. As before, we include industry dummies to control for a differential impact of CUSTOR across industries.

Models (1) and (12) in Table 8 show the regression estimates for the financial and COVID crises periods, respectively.[12] Models (2)-(11) report the findings from each subsequent

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[12] The coefficient and t-statistic of CUSTOR in model (1) are slightly different from the ones in model (2) of Table 3 due to the omission of the CSR variable.

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regression of CUSTOR (and controls) on buy-and-hold raw returns starting from August 2009 to March 2010 in model (2) and ending with the period from August 2018 to March 2019 in model (11). Consistent with expectations, the results in Table 8 show that the CUSTOR-returns relation is largely absent in normal periods and becomes economically negligible with coefficients close to zero and statistically nonsignificant in 9 out of the 10 periods covering the years between the financial and COVID crises. The only exception is the period from August 2015 to March 2016. Although this period does not feature a crisis for the US capital markets, it likely encapsulates investor fear and unexpectedly low trust spurred in the US market as a result of the Chinese stock market meltdown of 2015-2016.[13]

<div align="center">

[**Insert Table 8, here**]

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3.4. Channel analysis

Our analysis thus far supports a positive and robust CUSTOR-returns relation during adversity periods. However, the channel through which customer orientation may generate future economic benefits that positively affect stock returns remains less clear. A plausible explanation is that strong customer orientation helps solidify customer trust through loyalty and commitment that pays off during adverse economic shocks. This enhanced customer trust translates into lower downside losses (compared to firms with low levels of customer orientation) associated with relatively better sales growth and higher profitability during crises. If this is the case, then measures of firm operating performance should also be positively affected by customer orientation during adverse economic conditions.

To examine this channel, Table 9 provides estimates from cross-sectional regressions of various firm operating performance measures, estimated during the financial and COVID crises, on CUSTOR and control variables (measured prior to the crisis periods). We employ three different measures of a firm's operating performance: Sales Growth, calculated as

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[13] The Chinese stock market meltdown began in mid-June 2015 and ended in February 2016, with the market being very volatile and exhibiting aftershocks in July and August of 2015, as well as additional slumps in January and June of 2016.

the quarterly change in sales (Lins et al., 2017); Operating Profits, calculated as the quarterly total revenue minus the cost of goods sold minus selling, general and administrative expenses plus R&D expenditures, divided by lagged total assets (Ball, Gerakos, Linnainmaa, and Nikolaev, 2015); and Operating Return, estimated as quarterly operating income before depreciation plus R&D expenditures divided by lagged total assets (Graham Jr and Frankenberger, 2000). For the financial crisis period, a firm's performance is computed as the average value of the last quarter of 2008 and the first quarter of 2009, whilst for the COVID crisis period it is computed using data from the first quarter of 2020. CUSTOR and other independent variables are computed as in Tables 3 and 4, respectively. Standard firm-level filters, variables winsorization and coefficient standardization are applied as in previous tables.

Table 9 shows the regression results estimated during the financial crisis in Panel A, and during the COVID crisis in Panel B. The results show that CUSTOR is positive and statistically significant in almost all multivariate specifications, as shown in models (2), (4) and (6), suggesting that firms with higher customer orientation tend to exhibit higher sales growth, higher operating profits, and higher returns on assets during the two adversity periods. These results lend credence to the claim that customer orientation enriches firms' social capital by fostering trust through customer loyalty and commitment, resulting in improved operating performance in adversity periods and making firms more resilient to negative shocks during periods of low market confidence.

[**Insert Table 9, here**]

4. Conclusions

This empirical study has examined the impact of customer orientation policies on firms' stock returns to answer the question of whether customer orientation helps safeguard firms providing resilience during periods of adversity and low market confidence. Using a measure

of customer orientation based on textual analysis of 10-K filings, we find a significant positive relation between a firm's customer orientation and stock returns during the global financial crisis of 2008-2009, as well as during the more recent COVID pandemic crisis. Our findings are robust to different variable definitions and measurements. Importantly, inclusion of CSR, previously linked to customer trust and performance, does not affect in any material way our findings. This suggests that customer orientation enables firms to foster social capital in a way that is different from the one that firms build social capital through CSR.

Our study suggests that a firm's customer orientation is an important source of corporate social capital which can be particularly beneficial during periods of adversity when the importance of customer loyalty and trust increases. Our findings also support the notion that customer orientation is an intangible asset that is positively valued by investors and provides a safeguard in periods when public trust in corporations and the capital markets at large erodes. Our channel analysis further suggests that customer orientation is strongly positively associated with measures of future operating performance and profitability.

Our findings have several important implications for theory and policy. First, as documented in this study customer-oriented practices provide more grounds of corporate immunity and resilience during economic adversity periods. Second, we provide evidence regarding the distinct incremental role of customer orientation over and above CSR activities and known social capital channels. Our study suggests that customer orientation is a new mechanism through which firms can build social capital and increase trust leading to firm immunity and improved operating performance during bad economic conditions. Third, our study helps to bring out the role of intangible capital in the form of customer relationships on stock returns for "new economy firms" in line with Barth et al. (2022).

The results herein are of high importance to capital markets and marketing executives as global competition and economic recessions have brought reductions in marketing budgets and raised concerns whether marketing investments are adequately rewarded and valued. This has brought to the forefront the need to connect marketing expenditures to firm perfor-

mance (Lehmann and Reibstein 2006; McAlister, Srinivasan, Jindal, and Cannella 2016). In this regard, our study responds the call by Marketing Science Institute and Conchar, Crask, and Zinkhan (2005) to investigate the factors under which marketing policies are efficient and how they impact firm valuations.

Finally, utilizing a newly developed customer orientation measure derived from textual analysis opens a new avenue in the literature. The implications from our study should be of value to empirical economists, corporate managers, financial analysts and investors as the new customer orientation measure may also help reduce informational asymmetry in the marketplace. Researchers and practitioners alike may derive valuable insights regarding the economic determinants of firm performance, return prediction, cost of capital, and investing strategies related to customer-oriented activities.

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Appendix.

A. The customer orientation dictionary

The core and contextual lexical items below are used to estimate the customer orientation (CUSTOR) measure from firms' 10-K filings. Lexical items in bold are the recurring words taken from the MKTOR instrument of Narver and Slater (1990), while the other words are their corresponding synonyms from Princeton University's WorldNet Lexical Database and Harvard IV-4 Dictionary. Refer to Andreou et al. (2020) for an in depth discussion of the methodology followed to develop the CUSTOR core-contextual word pairs.

Core words

customer*, consumer*, client*, buyer*, guest*, purchaser*, patient*, patron*, policyholder*, subscriber*, shopper*

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*

B. Description of variables

This section provides a detailed definition of the control variables used in the paper.

CSR: Corporate social responsibility is a total net score estimated as a sum of standardized strengths minus standardized concerns across five stakeholder-oriented categories (environment, employee relations, human rights, community and diversity). For each category, the standardized score is the difference between the number of strengths divided by the maximum possible strengths and the number of concerns divided by the maximum possible concerns. A total net score is the sum of standardized values for the five categories. For more detailed information on the construction of CSR metric, please refer to Lins et al. (2017).

Advertising: advertising expenses divided by total sales.

R&D: research and development expense divided by total sales.

Asset Growth: year-to-year change in total assets.

Market Cap.: the firm's stock price multiplied by the number of shares outstanding, measured in millions of dollars.

Size: log of the firm's market capitalization.

Long-Term Debt: total long-term debt divided by total assets.

Cash Holdings: cash and short-term investments divided by total assets.

Profitability: operating income after depreciation divided by total assets.

Book-to-Market: book equity divided by market capitalization. Book equity is the book value of shareholders' equity, plus investment tax credit and balance sheet deferred taxes, minus the book value of preferred stock. If book value of shareholders' equity is missing, we use either total common equity plus stock par value or total assets minus total liabilities, whichever is available in such an order. If nothing is available, then book value of shareholders' equity is considered as missing (Daniel and Titman, 2006). The book value of a preferred stock is either redemption, liquidation or par value, whichever is available in such an order.

Negative B/M: a binary variable that is set equal to one if the Book-to-Market ratio is negative, and zero otherwise.

Momentum: the cumulative raw return over a 12-month time window.

Idiosyncratic Risk: the variance of residuals extracted from the market model. The market

model is estimated over a 60-month time window ending one month before the start of a crisis period using the CRSP value-weighted index as the market proxy.

Figures

Figure 1: Average customer orientation (CUSTOR) by industry
This figure shows the distribution of CUSTOR values across the Fama-French 48 industries prior to (a) the financial crisis of 2008-2009, and (b) the COVID crisis of 2019-2020. CUS-TOR is the proportion of the total number of customer-oriented core-contextual word pairs to the total number of words in 10-K document, measured at the end of 2006 for the financial crisis and at the end of 2017 for the COVID crisis.

Figure 1(a): Average customer orientation by industry during the financial crisis
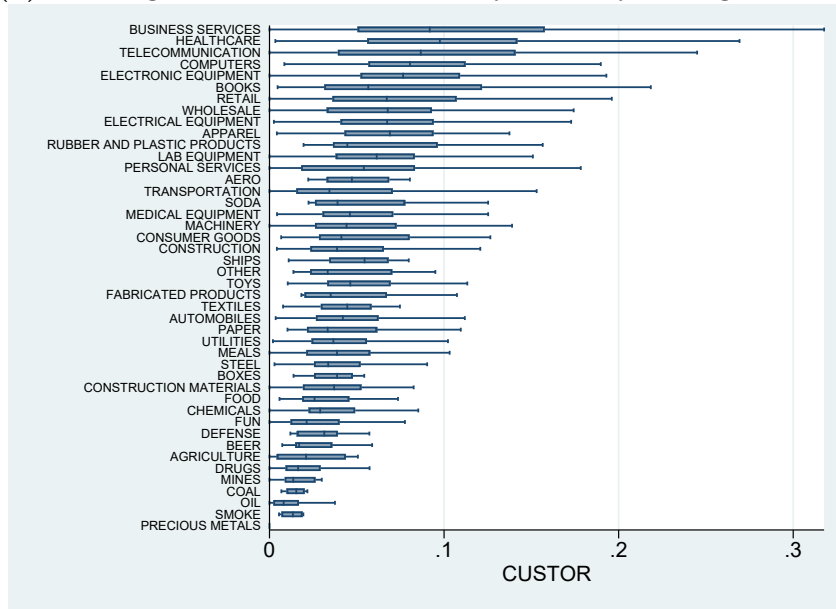
Figure 1(b): Average customer orientation by industry during the COVID crisis
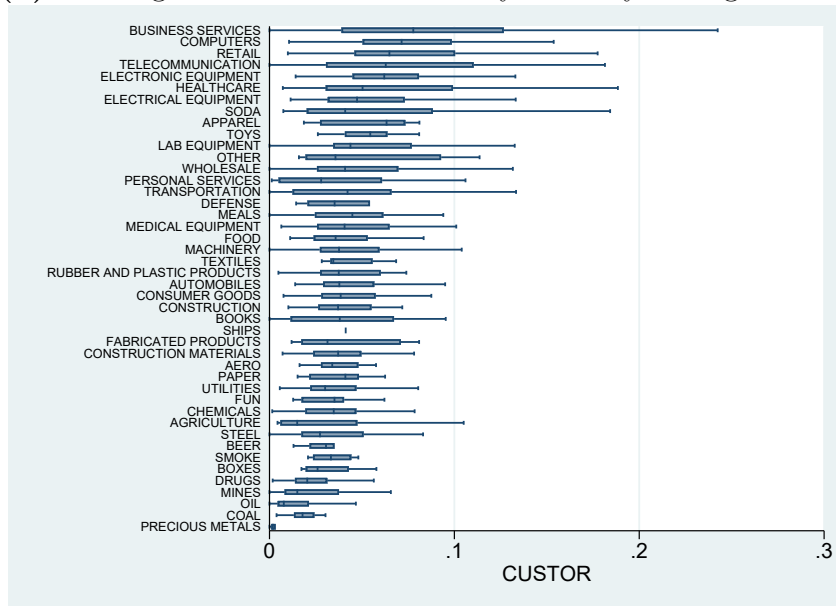
Tables

Table 1: Summary statistics

This table reports the descriptive statistics in Panel A and the matrix of Pearson correlation coefficients in Panel B of key variables for the financial and COVID crisis periods. The upper triangle in the correlation matrix reports the coefficients (in bold) for the COVID crisis, whereas the lower triangle reports the coefficients for the financial crisis. BH-RAW for the financial (COVID) crisis is the buy-and-hold stock return over the period from August 2008 to March 2009 (January 2020 to April 2020). BH-ABN for the financial (COVID) crisis is the buy-and-hold abnormal return over the period from August 2008 to March 2009 (January to April 2020), whereby the monthly abnormal return is computed as the raw return minus the expected stock return that is predicted by the market model. The market model is the time-series regression of excess stock returns on CRSP value-weighted index excess returns estimated over a 60-month window ending in July 2008 for the financial crisis and in December 2019 for the COVID crisis. CUSTOR is the proportion of the total number of customer-orientation core-contextual word pairs to the total number of words in 10-K document. CUSTOR is measured at the end of 2006 for the needs of the financial crisis analysis and at the end of 2017 for the needs of the COVID crisis analysis. Accounting-based variables are measured at the last quarter ending before December 2007 for the financial crisis and before December 2018 for the COVID crisis. Momentum and Idiosyncratic Risk are computed over a 12- and 60-month time window, respectively, before July 2008 for the financial crisis and before December 2019 for the COVID crisis. We estimate the factor loadings over a 60-month time window prior to July 2008 for the financial crisis and December 2019 for the COVID crisis, using factor returns obtained from Kenneth French's website. All continuous variables are winsorized at 1% level. The detailed definitions of all independent variables are provided in the Appendix.

Panel A: Descriptive Statistics

	Financial crisis			COVID crisis		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
BH-RAW (buy-and-hold raw return)	-0.405	-0.411	0.274	-0.199	-0.207	0.238
BH-ABN (buy-and-hold abnormal return)	0.099	0.029	0.539	-0.082	-0.105	0.245
CUSTOR	0.066	0.051	0.056	0.053	0.042	0.043
CSR	-0.241	-0.250	0.491			
Market Cap. ($mln.)	6610	1434	17095	12537	2538	31932
Book-to-Market	0.493	0.414	0.361	0.437	0.326	0.473
Asset Growth	0.197	0.097	0.421	0.139	0.043	0.340
Advertising	0.012	0.000	0.028	0.011	0.000	0.029
R&D	0.110	0.000	0.462	0.341	0.002	1.594

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Long-Term Debt	0.201	0.172	0.197	0.272	0.258	0.223
Cash Holdings	0.175	0.092	0.201	0.183	0.085	0.231
Negative B/M	0.023	0.000	0.149	0.052	0.000	0.223
Profitability	0.086	0.090	0.117	0.045	0.071	0.165
Momentum	-0.083	-0.114	0.376	0.312	0.268	0.454
Idiosyncratic Risk	0.011	0.008	0.010	0.013	0.007	0.016

Panel B: Correlation coefficients matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) CUSTOR			**-0.03**	**-0.13**	**0.03**	**0.14**	**0.03**	**-0.12**	**-0.09**	**-0.04**	**-0.04**	**0.05**	**-0.13**
(2) CSR	0.09		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(3) Market Cap.	-0.09	0.19		**-0.13**	**-0.07**	**0.17**	**0.10**	**-0.06**	**0.04**	**-0.07**	**-0.01**	**0.02**	**-0.20**
(4) Book-to-Market	-0.06	-0.09	-0.10		**-0.06**	**0.03**	**-0.12**	**-0.10**	**-0.12**	**-0.27**	**-0.30**	**-0.32**	**-0.03**
(5) Asset Growth	-0.06	-0.04	-0.05	-0.10		**-0.12**	**0.02**	**0.09**	**-0.08**	**0.27**	**-0.08**	**-0.01**	**0.24**
(6) Profitability	0.12	0.03	0.15	-0.10	-0.09		**0.01**	**-0.57**	**0.09**	**-0.58**	**0.01**	**-0.17**	**-0.59**
(7) Advertising	0.03	0.14	0.06	-0.06	-0.05	0.08		**-0.05**	**0.05**	**0.07**	**0.07**	**-0.03**	**-0.00**
(8) R&D	-0.12	0.02	-0.05	-0.16	0.06	-0.60	-0.06		**-0.13**	**0.49**	**-0.02**	**0.16**	**0.38**
(9) Long-Term Debt	-0.12	-0.06	-0.05	-0.02	0.07	-0.03	0.01	-0.09		**-0.28**	**0.49**	**0.03**	**-0.09**
(10) Cash Holdings	0.07	0.06	-0.08	-0.27	0.06	-0.37	0.07	0.47	-0.36		**0.01**	**0.16**	**0.55**
(11) Negative B/M	-0.00	0.00	-0.04	-0.27	-0.02	-0.07	0.08	0.09	0.38	0.02		**-0.02**	**0.05**
(12) Momentum	-0.09	-0.09	0.07	-0.21	-0.00	0.03	-0.10	-0.01	-0.10	0.00	-0.05		**0.22**
(13) Idiosyncratic Risk	0.01	-0.15	-0.21	-0.17	0.24	-0.38	-0.01	0.31	-0.08	0.41	0.10	-0.02	

Table 2: Crisis-period returns of CUSTOR quintile portfolios

This table reports the value-weighted average monthly crisis-period returns for portfolios sorted on CUSTOR measured at the end of 2006 for the financial crisis analysis and at the end of 2017 for the COVID crisis analysis. Panel A shows the results with crisis-period raw returns, whereas Panel B displays the crisis-period abnormal returns on CUSTOR quintile portfolios. In December 2006 or 2017 all stocks are sorted into five portfolios based on CUSTOR and the value-weighted average monthly returns for all portfolios over two crisis periods are calculated. We also report the value-weighted average monthly return for the $H - L$ portfolio that buys the High-CUSTOR stocks and sells the Low-CUSTOR stocks. CUSTOR is the proportion of the total number of customer-orientation core-contextual word pairs to the total number of words in 10-K document. CUSTOR is measured at the end of 2006 for the needs of the financial crisis analysis and at the end of 2017 for the needs of the COVID crisis analysis. The first row in each panel reports the findings for the financial crisis spanning from August 2008 to March 2009 and the second row reports the results for the COVID crisis spanning from January to April 2020. A firm's abnormal return is the monthly raw stock return minus the expected stock return, as predicted by the market model. The market model is the time-series regression of excess stock returns on CRSP value-weighted index excess returns estimated over a 60-month window ending in July 2008 for the financial crisis and in December 2019 for the COVID crisis. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Crisis-period raw returns						
	Low CUSTOR				High CUSTOR	
	1	2	3	4	5	$H - L$
August 2008 - March 2009	-4.85	-4.54	-4.64	-5.48	-3.31	1.54**
						(2.09)
January 2020 - April 2020	-3.37	-1.48	-2.88	-2.37	1.33	4.70***
						(4.90)

Panel B: Crisis-period abnormal returns						
	Low CUSTOR				High CUSTOR	
	1	2	3	4	5	$H - L$
August 2008 - March 2009	-0.26	-0.17	0.34	-0.26	2.00	2.27***
						(3.46)
January 2020 - April 2020	-1.54	0.44	-0.86	-0.40	3.69	5.24***
						(3.61)

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Table 3: Baseline regressions of financial crisis returns on CUSTOR

This table reports the estimates from cross-sectional regressions of financial crisis returns on CUSTOR and control variables. BH-RAW is the buy-and-hold return and BH-ABN is the buy-and-hold abnormal return, both measured over the period from August 2008 to March 2009. The monthly abnormal return is computed as the raw return minus the expected stock return that is predicted by the market model. The market model is the time-series regression of excess stock returns on CRSP value-weighted index excess returns estimated over a 60-month window ending in July 2008. CUSTOR is the proportion of the total number of customer-orientation core-contextual word pairs to the total number of words in 10-K document and is measured at the fiscal year-end of 2006. Accounting-based variables are measured at the last quarter ending before December 2007, whilst Momentum and Idiosyncratic Risk are computed over a 12- and 60-month window, respectively, ending in July 2008. We estimate the factor loadings over the 60 months prior to July 2008, using factor returns obtained from Kenneth French's website. Industry dummies are defined following two-digit SIC classification. All variables are winsorized at 1% level and regressors are standardized to have a mean value of zero and a standard deviation of one. The detailed definitions of all independent variables are provided in the Appendix. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	BH-RAW	BH-RAW	BH-ABN	BH-ABN
CUSTOR	0.037***	0.029***	0.071***	0.054***
	(4.98)	(3.91)	(5.25)	(3.96)
CSR		0.013**		0.016
		(2.03)		(1.48)
Size		0.010		0.008
		(1.38)		(0.63)
Book-to-Market		-0.052***		-0.080***
		(-6.64)		(-5.63)
Asset Growth		0.004		0.018
		(0.57)		(1.16)
Profitability		0.015		0.03
		(1.35)		(1.17)
Advertising		-0.002		0.001
		(-0.32)		(0.12)
R&D		-0.004		-0.017
		(-0.43)		(-0.78)
Long-Term Debt		-0.026***		-0.041**
		(-3.02)		(-2.56)
Cash Holdings		0.045***		0.085***
		(4.99)		(5.05)
Negative B/M		-0.036		-0.083
		(-0.58)		(-0.65)

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Momentum		-0.012		-0.042***
		(-1.50)		(-2.83)
Idiosyncratic Risk		-0.046***		-0.073***
		(-4.80)		(-3.73)
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Adj. R-squared	0.168	0.249	0.322	0.371
N	1,938	1,675	1,938	1,675

Table 4: Baseline regressions of COVID crisis returns on CUSTOR

This table reports the estimates from cross-sectional regressions of COVID crisis returns on CUS-TOR and control variables. BH-RAW is the buy-and-hold return and BH-ABN is the buy-and-hold abnormal return, both measured over the period from January 2020 to April 2020. The monthly abnormal return is computed as the raw return minus the expected stock return that is predicted by the market model. The market model is the time-series regression of excess stock returns on CRSP value-weighted index excess returns estimated over a 60-month window ending in December 2019. CUSTOR is the proportion of the total number of customer-orientation core-contextual word pairs to the total number of words in 10-K document and is measured at the fiscal-year end of 2017. Accounting-based variables are measured at the last quarter ending before December 2018, whilst Momentum and Idiosyncratic Risk are computed over a 12- and 60-month window, respectively, ending in December 2019. We estimate the factor loadings over the 60 months prior to December 2019, using factor returns obtained from Kenneth French's website. Industry dummies are defined following two-digit SIC classification. All variables are winsorized at 1% level and regressors are standardized to have a mean value of zero and a standard deviation of one. The detailed definitions of all independent variables are provided in the Appendix. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	BH-RAW	BH-RAW	BH-ABN	BH-ABN
CUSTOR	0.016***	0.020***	0.017**	0.020***
	(2.65)	(3.30)	(2.54)	(3.06)
Size		0.034***		0.032***
		(4.89)		(4.20)
Book-to-Market		-0.008		-0.005
		(-0.77)		(-0.43)
Asset Growth		0.001		0.004
		(0.16)		(0.60)
Profitability		-0.000		-0.007
		(-0.00)		(-0.57)
Advertising		0.013*		0.015*
		(1.79)		(1.90)
R&D		0.010		0.005
		(1.01)		(0.47)
Long-Term Debt		-0.018**		-0.010
		(-2.19)		(-1.19)
Cash Holdings		0.035***		0.027**
		(3.42)		(2.45)
Negative B/M		0.047		0.037
		(1.32)		(0.98)
Momentum		0.001		-0.003
		(0.09)		(-0.31)

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Idiosyncratic Risk		-0.005		-0.007
		(-0.42)		(-0.58)
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Adj. R-squared	0.230	0.266	0.166	0.189
N	1,536	1,529	1,536	1,529

Table 5: CUSTOR and corporate immunity variables

This table reports the estimates from cross-sectional regressions of the corporate immunity score (CIS) and crisis-period returns on CUSTOR and control variables. BH-ABN for the financial (COVID) crisis is the buy-and-hold abnormal return over the period from August 2008 to March 2009 (January to April 2020), whereby the monthly abnormal return is computed as the raw return minus the expected stock return that is predicted by the market model. The market model is the time-series regression of excess stock returns on CRSP value-weighted index excess returns estimated over a 60-month window ending in July 2008 for the financial crisis and in December 2019 for the COVID crisis. CUSTOR is the proportion of the total number of customer-orientation core-contextual word pairs to the total number of words in 10-K document. CUSTOR is measured at the fiscal year-end of 2006 for the needs of the financial crisis analysis, and at the end of 2017 for the needs of the COVID crisis analysis. Accounting-based variables are measured at the last quarter ending before December 2007 for the financial crisis, and before December 2018 for the COVID crisis. Momentum and Idiosyncratic Risk are computed over a 12- and 60-month window, respectively, before July 2008 for the financial crisis and before December 2019 for the COVID crisis. We estimate the factor loadings over the 60 months prior to July 2008 for the financial crisis and December 2019 for the COVID crisis, using factor returns obtained from Kenneth French's website. Industry dummies are defined following two-digit SIC classification. All variables are winsorized at 1% level and regressors are standardized to have a mean value of zero and a standard deviation of one. The detailed definitions of all independent variables are provided in the Appendix. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)
		Low CIS		High CIS	
	CIS	BH-RAW	BH-ABN	BH-RAW	BH-ABN
Panel A: Financial crisis					
CUSTOR	0.063**	0.036**	0.063***	0.020*	0.035*
	(2.35)	(3.33)	(3.34)	(1.81)	(1.73)
Control variables	Yes	Yes	Yes	Yes	Yes
Four-factor loadings	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.320	0.276	0.288	0.207	0.412
N	1,666	878	878	768	768
Panel B: COVID crisis					
CUSTOR	0.082***	0.026***	0.024**	0.014*	0.014
	(2.78)	(2.59)	(2.12)	(1.67)	(1.62)
Control variables	Yes	Yes	Yes	Yes	Yes

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Four-factor loadings	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.222	0.248	0.147	0.260	0.217
N	1,547	798	798	692	692

Table 6: Robustness tests

This table reports the estimates from cross-sectional regressions of financial crisis returns on CUS-TOR and control variables. In models (1) and (4), financial crisis raw and abnormal returns are defined as in Table 3, but all control variables are estimated at the fiscal year-end of 2006. In models (2) and (5), we respectively define the buy-and-hold raw return (BH-RAW) and the buy-and-hold abnormal return (BH-ABN) over the period from September 2008 to June 2009. The monthly abnormal return is computed as the raw return minus the expected stock return that is predicted by the market model. The market model is the time-series regression of excess stock returns on CRSP value-weighted index excess returns estimated over a 60-month window ending in August 2008. All control variables are measured as in Table 3. In models (3) and (6), both dependent and independent variables are defined as in Table 3, but CUSTOR is an alternative measure of customer orientation following Zachary et al. (2011). Industry dummies are defined following two-digit SIC classification. All variables are winsorized at 1% level and regressors are standardized to have a mean value of zero and a standard deviation of one. The detailed definitions of all independent variables are provided in the Appendix. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	BH-RAW	BH-RAW	BH-RAW	BH-ABN	BH-ABN	BH-ABN
CUSTOR	0.033***	0.029***	0.024***	0.046***	0.042***	0.041***
	(4.44)	(4.02)	(3.15)	(3.24)	(3.78)	(2.89)
CSR	0.003	0.008	0.010	-0.000	0.014	0.013
	(0.51)	(1.39)	(1.61)	(-0.05)	(1.43)	(1.13)
Size	0.015**	0.011	0.016**	0.028*	0.007	0.017
	(2.00)	(1.41)	(1.97)	(1.96)	(0.55)	(1.20)
Book-to-Market	-0.038***	-0.035***	-0.051***	-0.056***	-0.027*	-0.080***
	(-4.77)	(-3.95)	(-6.15)	(-3.72)	(-1.84)	(-5.23)
Asset Growth	0.005	0.013	-0.002	0.012	0.030**	0.006
	(0.68)	(1.52)	(-0.19)	(0.87)	(2.03)	(0.37)
Profitability	0.037***	0.019*	0.016	0.051**	0.028	0.028
	(3.89)	(1.66)	(1.44)	(2.58)	(1.54)	(1.26)
Advertising	-0.007	-0.001	-0.001	0.010	-0.002	0.004
	(-1.01)	(-0.20)	(-0.15)	(0.74)	(-0.25)	(0.29)
R&D	0.005	0.024	-0.008	0.007	0.042	-0.028
	(0.47)	(1.50)	(-0.70)	(0.38)	(1.49)	(-1.23)
Long-Term Debt	-0.025**	-0.020**	-0.023**	-0.025	-0.009	-0.033**
	(-2.56)	(-2.27)	(-2.54)	(-1.35)	(-0.64)	(-2.01)
Cash Holdings	0.045***	0.038***	0.046***	0.084***	0.042***	0.087***
	(4.66)	(3.87)	(4.98)	(4.24)	(2.71)	(5.00)
Negative B/M	-0.025	-0.107**	-0.040	-0.016	-0.167*	-0.101
	(-0.49)	(-2.00)	(-0.59)	(-0.15)	(-1.72)	(-0.73)
Momentum	-0.009	-0.034***	-0.010	0.003	-0.071***	-0.038**

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	(-1.08)	(-3.83)	(-1.15)	(0.18)	(-5.13)	(-2.51)
Idiosyncratic Risk	-0.029***	-0.030***	-0.046***	-0.000	-0.037*	-0.073***
	(-3.30)	(-2.62)	(-4.52)	(-0.02)	(-1.95)	(-3.54)
Four-factor loadings	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.223	0.214	0.240	0.217	0.325	0.354
N	1,689	1,659	1,528	1,689	1,659	1,528

Table 7: Additional analysis based on CUSTOR quintiles

This table reports the estimates from cross-sectional regressions of financial crisis returns on CUSTOR quintiles and control variables. BH-RAW is the buy-and-hold raw return and BH-ABN is the buy-and-hold abnormal return, both measured over the period from August 2008 to March 2009. The monthly abnormal return is computed as the raw return minus the expected stock return that is predicted by the market model. The market model is the time-series regression of excess stock returns on CRSP value-weighted index excess returns estimated over a 60-month window ending in July 2008. CUSTOR is the proportion of the total number of customer-orientation core-contextual word pairs to the total number of words in 10-K document and is measured at the fiscal year-end of 2006. CUSTOR Quintile 2 (3, 4, 5) is a binary variable that is set equal to one if a stock is assigned to quintile 2 (3, 4, 5) as of December 2006, and zero otherwise. Accounting-based variables are measured at the last quarter ending before December 2007, whilst Momentum and Idiosyncratic Risk are computed over a 12- and 60-month window, respectively, before July 2008. We estimate the factor loadings over the 60 months prior to July 2008, using factor returns obtained from Kenneth French's website. Industry dummies are defined following two-digit SIC classification. All variables are winsorized at 1% level and regressors are standardized to have a mean value of zero and a standard deviation of one. The detailed definitions of all independent variables are provided in the Appendix. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	BH-RAW	BH-RAW	BH-ABN	BH-ABN
CUSTOR Quintile 2	0.044**	0.045**	0.085**	0.084**
	(2.17)	(2.15)	(2.38)	(2.22)
CUSTOR Quintile 3	0.049**	0.038*	0.092***	0.073**
	(2.45)	(1.87)	(2.60)	(1.97)
CUSTOR Quintile 4	0.083***	0.066***	0.165***	0.127***
	(3.90)	(2.97)	(4.43)	(3.22)
CUSTOR Quintile 5	0.119***	0.098***	0.225***	0.182***
	(5.15)	(4.03)	(5.44)	(4.11)
Control variables	No	Yes	No	Yes
Four-factor loadings	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Adj. R-squared	0.168	0.249	0.323	0.371
N	1,938	1,675	1,938	1,675

Table 8: The effect of CUSTOR on stock returns during normal periods

This table reports the estimates from cross-sectional regressions of buy-and-hold raw returns (BH-RAW) on CUSTOR and control variables, starting at the financial crisis spanning the period from August 2008 to March 2009 period in model (1) and ending to the COVID crisis spanning the period from January 2020 to April 2020 in model (12). Models (2) - (11) show the estimates for all post-financial crisis period regressions. CUSTOR is the proportion of the total number of customer-orientation core-contextual word pairs to the total number of words in 10-K document and is measured two years before the start of the return estimation, *e.g.*, CUSTOR in model (2) is estimated at the end of 2007 for buy-and-hold raw returns spanning from August 2009 to March 2010. Accounting-based variables are measured at the fiscal year-end before December of each year preceding the BH-RAW period. Momentum and Idiosyncratic Risk are computed over a 12- and 60-month window, respectively, before July of each year preceding the BH-RAW period. We estimate the factor loadings over the 60 months prior to July of each year preceding the BH-RAW period, using factor returns obtained from Kenneth French's website. Industry dummies are defined following two-digit SIC classification. All variables are winsorized at 1% level and regressors are standardized to have a mean value of zero and a standard deviation of one. The detailed definitions of all independent variables are provided in the Appendix. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Financial crisis	Aug 09 - Mar 10	Aug 10 - Mar 11	Aug 11 - Mar 12	Aug 12 - Mar 13	Aug 13 - Mar 14	Aug 14 - Mar 15	Aug 15 - Mar 16	Aug 16 - Mar 17	Aug 17 - Mar 18	Aug 18 - Mar 19	COVID crisis
CUSTOR	0.031***	-0.014	0.005	0.000	0.005	-0.008	0.015	0.044***	-0.001	0.006	-0.000	0.020***
	(4.35)	(-0.95)	(0.33)	(0.04)	(0.38)	(-0.94)	(1.59)	(4.71)	(-0.07)	(0.49)	(-0.03)	(3.30)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Four-factor loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.225	0.133	0.094	0.110	0.101	0.006	0.310	0.187	0.036	0.045	0.120	0.266
N	1,929	1,818	1,664	1,547	1,491	1,463	1,428	1,303	1,181	1,131	1,074	1,529

Table 9: The effect of CUSTOR on firm-level performance

This table reports cross-sectional regression results of firm's performance measures estimated over the financial crisis (Panel A) and COVID crisis (Panel B) on CUSTOR and control variables. The firm performance measures include sales growth, operating profits and operating return. They are computed as the average values across the last quarter of 2008 and the first quarter of 2009 for the financial crisis period and using the first quarter value of 2020 for the COVID period. Sales Growth is the quarterly change in sales (Lins et al., 2017). Operating Profits is total revenue minus cost of goods sold minus selling, general and administrative expenses plus R&D expenditures divided by lagged total assets (Ball et al., 2015). Operating Return is the quarterly operating income before depreciation plus R&D expenditures divided by lagged total assets (Graham Jr and Frankenberger, 2000). CUSTOR is the proportion of the total number of customer-oriented core-contextual word pairs to the total number of words in 10-K document, measured at the fiscal year-end of 2006 for the financial crisis analysis and at the end of 2017 for the COVID analysis. Accounting-based variables are measured at the last quarter ending before December 2007 for the financial crisis and before December 2018 for the COVID crisis. Momentum and Idiosyncratic Risk are computed over a 12- and 60-month window, respectively, before July 2008 for the financial crisis and before December 2019 for the COVID crisis. We estimate the factor loadings over the 60 months prior to July 2008 for the financial crisis and December 2019 for the COVID crisis, using factor returns obtained from Kenneth French's website. Industry dummies are defined following two-digit SIC classification. All variables are winsorized at 1% level and regressors are standardized to have a mean value of zero and a standard deviation of one. The detailed definitions of all independent variables are provided in the Appendix. Heteroskedasticity-consistent standard errors are reported in parentheses. The symbols ***, **, and * denote two-tailed statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Financial crisis

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales Growth		Operating Profits		Operating Return	
CUSTOR	0.034	0.063***	0.112***	0.066***	0.118***	0.064***
	(1.53)	(3.01)	(5.12)	(3.14)	(5.42)	(3.06)
Control variables	No	Yes	No	Yes	No	Yes
Four-factor loadings	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.206	0.286	0.169	0.320	0.173	0.323
N	1,918	1,664	1,726	1,491	1,918	1,659

Panel B: COVID crisis

	(1)	(2)	(3)	(4)	(5)	(6)
CUSTOR	-0.023	-0.026	0.093**	0.084***	0.105***	0.070***
	(-0.83)	(-1.01)	(3.21)	(3.06)	(3.83)	(2.73)
Control variables	No	Yes	No	Yes	No	Yes

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Four-factor loadings	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.032	0.045	0.138	0.211	0.152	0.254
N	1,510	1,503	1,307	1,300	1,507	1,500

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