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Adapting to Radical Change: The Benefits of Short-Horizon Investors

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May 2020

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Abstract

We show that following shocks that change an industry's competitive environment, firms with more shortterm institutional investors experience smaller drops in sales and investment and have better long-term performance than similar firms affected by the shocks. To do so, these firms introduce new products, file trademarks, intensify their innovation efforts, conduct more diversifying acquisitions, and have higher executive turnover in the aftermath of the shocks. Our findings suggest that firms with more short-term investors adapt better to the new competitive environment. Endogeneity of institutional ownership and other selection problems do not appear to drive our findings.

Keywords: Short-termism, investor horizons, tariff cuts

JEL Classifications: G3, G23, F1

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We show that following shocks that change an industry's competitive environment, firms with more short-term institutional investors experience smaller drops in sales and investment and have better long-term performance than similar firms affected by the shocks. To do so, these firms introduce new products, file trademarks, intensify their innovation efforts, conduct more diversifying acquisitions, and have higher executive turnover in the aftermath of the shocks. Our findings suggest that firms with more short-term investors adapt better to the new competitive environment. Endogeneity of institutional ownership and other selection problems do not appear to drive our findings.

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All this is not to say that we should start chanting: "Short-term good, long-term bad". Rather, it is an argument for nuance.

The Tyranny of the Long-Term, The Economist, November 22, 2014

1. Introduction

A long-standing view in corporate governance is that frenetic trading in public stock markets leads corporations to maximize short-term stock valuations instead of focusing on long-term profit (Kay, 2012; Froot, Perold, and Stein, 1992). While this is a recurrent narrative in academic and policy circles, it is often challenged (Roe, 2017; Kaplan, 2018). Theoretically, short-term pressure may prompt companies to maximize shareholder value instead of allowing managers to "enjoy the quite life" (Gryglewicz, Mayer, and Morellec, 2018). This is possible even though in some instances the pressure faced by corporate leaders may lead them to pursue short-term objectives at the expense of the long-run (Graham, Harvey, and Rajgopal, 2005).

This paper explores empirically whether short-term pressure by public markets may help improving firm performance. As is common in the literature (e.g., Bushee, 1998), we exploit cross-sectional differences in institutional shareholders' trading horizons. We conjecture that pressure on managers to maximize shareholder value and gain comparative advantage is beneficial when competition intensifies. Whether firms succumb or thrive when industry shakeouts occur depends on how fast they adjust and reinvent their business model. The threat of short-horizon investors' hasty selloffs may spur firms to rapidly adjust in the aftermath of shocks that require major strategy overhauls.[1]

To explore how ownership structure affects firms' adjustment to changing economic environments, we base our empirical investigation on the effects of large drops in industry-level import tariffs. Since softening trade barriers increases the competitive pressure that foreign rivals exert on domestic manufacturing firms, substantial reductions in import tariffs are considered to be large, plausibly exogenous, shocks (Fresard, 2010; Xu, 2012; Valta, 2012; Dasgupta, Li, and Wang, 2017).

[1] Section 2 describes the conceptual framework of our empirical analysis and explain why short-term investors may benefit firms when competition intensifies and why long-term investors cannot mimic them.

While these shocks involve risk of losing domestic market shares, they also provide opportunities for expanding in new markets. Firms may thus have to quickly react to seize the opportunities and to avoid the risks. We test whether firms with disproportionately more short-horizon investors are more successful in adjusting and, consequently, achieve better long-term performance than other similarly affected firms.

We find that, following large tariff cuts, firms with disproportionately more short-term investors have lower drops in the growth of sales in comparison to other domestic firms in the *same* industry, which have been similarly affected by the shocks. These effects appear to be associated with more investment and diversifying acquisitions, which may be necessary to enter new markets. The strategic investment theories of Spence (1977) and Dixit (1980) suggest that by investing in fixed capacity, firms can credibly commit to compete aggressively in the product market. We show that these optimal responses to an increase in competition are enhanced by short-term institutional ownership.

Firms with more short-term institutional ownership appear to be able to maintain market share by introducing new products thus differentiating their products from those of competitors to a greater extent. In the years following the tariff cuts, these firms also protect their comparative advantage by filing for more trademarks and innovate more obtaining more and higher quality patents. We also show that firms with more short-term institutional investors have higher executive turnover following the shocks, suggesting that they search for new skills to adapt their corporate policies. Importantly, these changes translate into long-term improvements in profitability and firm value. Thus, firms with more short-term investors appear to be better at adapting to new environments: Instead of "enjoying the quite life" (Bertrand and Mullainathan, 2003), their managers reinvent the firms' business models and choose the industries in which to operate and managerial skills in order to create comparative advantage.

In all of our tests, we study the effect of predetermined short-term institutional ownership conditional on the occurrence of large tariff cuts. Since we control for the direct effect of short-term institutional ownership, we avoid the endogeneity concerns that arise from studying the unconditional effect of ownership on performance. To mitigate concerns that short-horizon investors have selected companies in anticipation of their positive reaction to the shocks we study, we perform a battery of robustness tests. First, we show that consistent with the causal mechanism underlying our hypothesis,

firms with disproportionately more short-term investors maintain higher growth in sales and investment following the shocks, especially when their CEOs' wealth is more sensitive to stock price performance and would therefore be affected particularly negatively by the stock selloff.

Second, our results are invariant if we consider stocks that short-term institutional investors already owned well into the past. Such a test is particularly powerful in our context to exclude reverse causality problems. The typical concern in using lagged ownership is that investors select firms in anticipation of their responses to the shocks. In our context, given the short trading horizons of the institutions we consider, the identity of short-term investors has changed in the time interval (five years) between the measurement of ownership and the occurrence of the shock even though the extent of short-term institutional ownership did not (because short-term institutional owners trade with each other).[2]

While the nature of short-term institutional ownership makes reverse causality unlikely once we sufficiently lag the ownership variables, omitted factors may represent a threat to the identification. It is never possible to provide a statistical demonstration that omitted factors do not drive the estimates, but we perform several tests that make alternative explanations based on omitted factors unlikely.

First, we exploit exogenous variation in short-term institutional ownership due to decimalization (Bessembinder, 2003; Fang, Tian, and Tice, 2014). By reducing the minimum tick size and thus increasing liquidity, the 2001 decimalization favored an exogenous increase in short-term institutional ownership especially in large and middle-sized companies. It is therefore comforting that firms whose short-term institutional ownership increased the most because of decimalization appear to perform better after the shocks also in our instrumental variable estimates.[3]

Second, we consider virtually all plausible alternative mechanisms that may lead to a correlation between short-term institutional ownership and performance following tariff cuts. In particular, we show that differences in firms' reactions are not driven by omitted firm characteristics potentially correlated with short-term institutional ownership, such as firms' differential exposure to trade shocks, activist campaigns, family ownership, size, cash holdings, leverage, ownership

[2] Importantly, we obtain no results for firms that had high short-term institutional ownership five years before the shock, but not at the time of the tariff cut. We thank the referee for suggesting this test.
[3] Results are qualitatively invariant if we exploit other sources of short-term institutional ownership such as index inclusions.

concentration, corporate governance, or differential exit rates. All these tests corroborate the causal interpretation of our findings.

Our results suggest that investors' short horizons foster firm performance when economic environments change radically. Under these circumstances, firms and economies with disproportionately more short-term investors may appear more dynamic and avoid stagnation, indicating that short-horizon investors perform an important function in the economy.

This paper belongs to a literature exploring how investor horizon affects corporate policies. Consistent with theories showing that short investor horizons may lead to managerial myopia Stein (1989), Bushee (1998), Bushee and Noe (2000) and Bushee (2001), Derrien, Kecskes, and Thesmar (2013) find that short-term investment may be valued more in firms whose shareholders have short horizons. Firms appear to cut long-term investment after experiencing increases in short-term institutional ownership (Cremers, Pareek, and Sautner, 2019). Firms with more short-horizon investors also fare worse in takeovers (Gaspar, Massa, and Matos, 2005; Chen, Harford, and Li, 2007). By contrast, long-term institutional investors appear to improve corporate governance by limiting over-investment (Harford, Kecskes, and Mansi, 2018).

All these papers provide evidence that long-term investors influence managers to pursue corporate policies that enhance firm value when the economic environment is static. Theoretically, however, investor short-termism could ameliorate managerial incentives and limit extraction of private benefits or managerial preference for a quiet life (e.g., Ferreira, Manso, and Silva, 2012; Thakor, 2015).

To the best of our knowledge, ours is the first empirical paper to highlight a benefit of short-term investors and to document a case of efficient short-termism. We are agnostic on the effect of short-term ownership during normal times. However, we note that our results can be fully consistent with negative effects of short-term ownership in some states of the world because the benefits we highlight exist conditionally on large changes in competitive environment.

The rest of the paper is organized as follows. Section 2 provides a conceptual framework for the empirical tests. Section 3 describes the empirical approach. Section 4 describes the data. Section 5 reports the results. Section 6 discusses how firms maintain comparative advantage and Section 7

presents the robustness tests. Section 8 concludes. Variable definitions and additional robustness tests are in the Internet Appendix.

2. Conceptual Framework and Relation to Existing Literature

We consider the governance roles of short-horizon institutional investors, that is, investors that are subject to frequent liquidity shocks and consequently have high portfolio turnover. Firms that cater to short-horizon investors tend to produce more short-term information (Glaeser, Michels, and Verrecchia, 2017). As a consequence, these firms may have nimble decision-making processes that make them more adaptable to changes in economic environment. One may view this paper as a test of this simple organizational behavior story.

The pressure created by the exit threat of short-horizon investors may also spur firms to rapidly adjust in the aftermath of shocks that require major strategy overhauls. As we discuss more in detail below, when uncertainty on the firm's prospects increases, as for instance when competition intensifies due to tariff cuts, short-horizon investors are more likely to sell, leading to undervaluation. To limit uncertainty and the resulting undervaluation, the managers of firms with short-horizon investors exert more effort and provide early signals that their company is adapting to the new economic environment. We conjecture that this may constitute comparative advantage when competition intensifies.

2.1 The Behavior of Short-Horizon Investors

Short-horizon investors differ from other institutional investors because they are subject to frequent liquidity shocks and, consequently, their payoffs depend on interim stock prices (Bernardo and Welch, 2004).[4] In the presence of a risk adverse market maker, waiting to sell in the interim period if a liquidity shock realizes may be costly: Selling after other investors warrants a lower price than selling right away because by then the market maker would have accumulated more inventories.

[4] Institutional investors' horizons differ because of different organizational structures (Cella, Ellul, and Giannetti, 2013). For instance, the way in which the investor's net assets under management respond to the fund's performance dramatically affect an investor's horizon. Second, ownership and managerial characteristics have also been shown to affect the trading horizon of fund managers and their focus on short-term returns. Compensation based on short-term performance leads institutional investors' managers to have short trading horizons. Similarly, short managerial tenures induce fund managers to focus on short-term returns.

As a consequence, if short-term investors expect an increase in the probability of liquidity shocks, a larger fraction of them rushes to sell before any liquidity shock is realized. In equilibrium, the price at which short-term investors sell is below the expectations of the fundamental value. Importantly, as in the extension presented by Bernardo and Welch (2004), the probability of liquidity shocks may depend on uncertainty on the future prospects of a firm. Even if the expectations on the firm's mean payoff do not vary, an increase in uncertainty may make short-term investors more likely to sell because it increases the probability of a bad outcome for the firm, which in turn can drive a liquidity shock for the investor.

The crucial difference between long-term and short-term investors is that long-term investors are not subject to liquidity shocks. Therefore, they have a different expected payoff and never find it optimal to sell at a discount before the realization of fundamental uncertainty.[5] While they can also threaten to exit, they always wait for the resolution of fundamental uncertainty. Thus, their threat of exit is necessarily slower.

In sum, firms with more short-run investors are more vulnerable to runs following increases in fundamental uncertainty. While long-term investors wait and see if their invested company indeed ends up losing from the change in economic environment, short-term investors may engage in a selloff just because the company may lose.

2.2 Corporate Governance Implications of Short-Horizon Investors

Although no existing theory explicitly links the behavior of short-horizon investors to managerial behavior and corporate policies, we draw on a body of research assuming that managerial payoffs depend not only on firms' fundamental values, but also on stock prices (Stein, 1989; Admati and Pfleiderer, 2009; Edmans, 2009).

Under this assumption, to limit the price drop, managers of firms with more short-term investors have incentives to send early signals that they are adapting to the new economic environment, and are unlikely to end up as losers. We argue that stronger incentives to adapt fast may enhance the

[5] High-capital gains also tend to increase the costs of exiting for funds with long holding periods, effectively locking them in (Dimmock et al., 2018). In addition, a large part of long-term investors are passive investors, who have to follow an index and are therefore unable to exit.

competitive position of firms with more short-term investors. Slower pace of change is a handicap when market shares and industry leadership are at stake.

Empirically, we capture changes in economic environment that may increase uncertainty on future firm prospects and require fast reactions considering large tariff cuts. Our contribution is to argue that the stock price fragility provoked by short-horizon investors gives managers incentives to send early signals that they are adapting and will not end up as losers in the new economic environment. Thus, managers are more prone to pay effort, change strategy, look for new ideas and executives to ward off from increases in fundamental uncertainty and stock price drops. We expect these incentives to be stronger if managers' wealth is related to firm valuations.

In our conceptual framework, the extreme form of price fragility caused by short-horizon investors performs a function similar to that of demandable deposits in disciplining banks highlighted by Calomiris and Kahn (1991) and Diamond and Rajan (2001). Thanks to their propensity to financial market runs, short-term investors unwittingly affect managerial policies of firms in which many of them hold shares in a way that longer horizon investors are unable to. While the pressure to resolve early fundamental uncertainty may sometimes be deleterious, we propose that short-term investors' threat of swift selloffs is beneficial for shareholder value when changes in competitive environment require fast reactions.

The mechanism we propose and test complements existing literature that highlights the positive value effects of institutional blockholders' threat of exit (Bharath, Jayaraman, and Nagar, 2013; Edmans, Fang, and Zur, 2013), which successfully discipline managers even if we do not typically observe actual selloffs. Blockholders can also threaten to exit, but their exits are expected to occur after observing negative private information on firm prospects (Admati and Pfleiderer, 2009; Edmans, 2009). Unlike the blockholders in Edmans and Manso (2011), short-horizon investors react to public information and do not necessarily have information on the internal working of the firms they own. Thus, differently from Admati and Pfleiderer (2009), Edmans (2009), and Edmans and Manso (2011), short-horizon investors' threat of exit is not expected to lead to more informative stock prices, but is rather associated with undervaluation. Short-horizon investors also affect managerial policies through stock prices, but may lead to efficient or inefficient short-termism, depending on the state of the world.

While existing literature highlights the potential costs associated with short-horizon investors, we propose that when industries experience shakeouts and the speed of adjustment determines a firm's long-term position, the pressure associated with short-horizon investors' threat of exit may result into competitive advantage.

3. Methodology

3.1 Reduction of Import Tariffs

Large changes in tariffs represent large shocks to an industry competitive environment. Firms risk losing market shares to foreign firms. By changing their strategies, introducing new products, and innovating, domestic firms may weather competition from foreign firms (Bloom, Draca, and Van Reenen, 2016). Firms that are more inclined and faster in implementing strategic changes may be more successful in maintaining market share. In this way, they may attain better long-term performance than other domestic firms in same industry.

We explore how firms in an industry are affected by trade shocks depending on their ownership structure. Following Fresard (2010), Xu (2012), Valta (2012), and Dasgupta, Li, and Wang (2017), we measure large changes in import competition using large reductions of import tariff rates. These shocks are not under direct control of domestic firms and have been widely used in the literature to capture large exogenous changes in competition.

We measure ad valorem tariff rates, computed as the duties collected at the U.S. Customs, divided by the Free-On-Board custom value of imports (Feenstra, 1996). We obtain U.S. import tariff data for four-digit SIC code industries from Feenstra (1996), Feenstra, Romalis, and Schott (2002), and Schott (2010) starting from 1981, the first year for which we have institutional ownership information, up to 2005. We then update the tariff data up to 2011 following the procedure indicated in the above papers.

As is common in the literature (e.g., Fresard, 2010; Valta, 2012), we characterize a large tariff cut as a yearly drop in an industry's tariff rate that is larger than twice the median tariff rate reduction in that industry over the sample period. Out of the 556 four-digit SIC industries in our sample, 501 are

affected at least once by a large tariff cut. Out of 13,327 industry-years, 4,670 are affected by a large tariff cut.

On average, these tariff cuts have negative effects on the affected industries: In our sample, during the five years after the large tariff cuts, the sales of the median firm in the affected industries drop by 15% per year in comparison to the average sales growth of firms in unaffected industries. Arguably, as a consequence, nearly 1% of the affected firms are delisted, bankrupt, or acquired. There is however large variation in performance between firms in an industry. It is our objective to explore how this cross-sectional variation is related to short-term institutional ownership.

While the way in which we measure import tariff cuts allows us to capture actual increases in competition, it does not take into account that treaties may have been signed in advance. One may wonder whether some firms had already taken steps to adapt to the new competitive environment before the large tariff cuts. The timing of the effects of the tariff cuts we consider is consistent with previous studies (Fresard, 2010; Xu, 2012; Valta, 2012; and Dasgupta, Li, and Wang, 2017) and with evidence in Table 6 that there is no differential behavior between firms with different short-term institutional ownership before the cut. The lack of anticipation effects supports our empirical approach and may depend on the fact that it is highly uncertain which (foreign) firms will actually be successful in penetrating the domestic market (Bernard et al., 2012). This may lead firms to wait for the actual entry of competitors.

3.2 Empirical Framework

We explore the impact of trade shocks on firms' changes in sales and capital expenditures with the objective of testing how *ex ante* differences in short-term institutional ownership lead to differential responses of domestic producers. Our tests share the spirit of the difference-in-difference methodology, but the treatment is a continuous measure of short-term institutional ownership. Our main tests are based on the following empirical model:

$$g_{f,i,t+1} = \alpha_0 + \alpha_1 cut_{i,t} \times short\ term\ IO_{f,i,-1} + \alpha_2\ cut_{i,t} + \alpha_3 short\ term\ IO_{f,i,t-1} + \boldsymbol{A_4 X_{f,i,t}} + \varepsilon_{f,i,t} \quad (1)$$

The dummy variable $cut_{i,t}$ takes value equal to one for firms in industry i during the year of the large tariff cut. Model (1) allows us to test whether in the year following the cut, the growth rate of firm f in industry i ($g_{f,i,t+1}$) increases in the proportion of short-term institutional investors at year $t-1$ ($short\ term\ IO_{f,i,t-1}$). The interaction term allows for a differential reaction of firms with different levels of short-term institutional ownership to the shock and is our main variable of interest.

Depending on the specifications, the matrix of controls, $\boldsymbol{X_{f,i,t}}$, may include lagged profitability, firm and year fixed effects, interactions of industry and year fixed effects, institutional ownership, and an interaction term between institutional ownership and $cut_{i,t}$.

It is also important to explore the effects of trade shocks and ownership structure on firms' long-term performance, as captured by the Tobin's Q and profitability, because short-term growth could be achieved at the expenses of long-term performance (Graham, Harvey, and Rajgopal, 2005). To explore this, we estimate the following model:

$$y_{f,i,t+1} = \beta_0 + \beta_1 post\ cut_{i,t} \times short\ term\ IO_{f,i,t-1} + \beta_2 post\ cut_{i,t} + \beta_3 short\ term\ IO_{f,i,t-1} + \boldsymbol{B_4 X_{f,i,t}} + \varepsilon_{f,i,t} \quad (2)$$

The main difference between Model (1) and Model (2) is that the dummy $post\ cut_{i,t}$ aims to capture a lasting effect and takes value equal to one following the first tariff cut in industry i. By contrast, the dummy $cut_{i,t}$ takes value one only during the year of the tariff rate cut.

A potential concern is that tariff cuts affect industries with different dynamics. In our context, however, endogeneity problems arising from potential industry-level omitted factors are addressed by considering heterogeneity in performance of firms *within* the same industry. Furthermore, our control sample also includes firms with different investor horizons that are not subject to shocks. Therefore, the direct effect of the percentage of short-term ownership captures (and controls for) the investors' ability to select better companies, as long as short-term institutional investors do not have differential abilities in selecting firms when large tariff cuts occur.

This identification assumption is unlikely to be too restrictive, as firms are subject to a multitude of shocks other than tariff cuts and the direct effect of short-term institutional ownership should largely control for short-term investors' ability to select firms when shocks occur. Nevertheless, in Section 7,

we provide evidence that our results are invariant when we exploit exogenous variation in short-term institutional ownership. In addition, we provide direct evidence on the validity of our identification assumption in a number of robustness tests, and show that short-term institutional ownership is unlikely to be correlated with omitted firm characteristics affecting the response to the tariff cuts.

4. Sample and Data

4.1 Sample Construction and Data Sources

We merge all publicly traded U.S. firms in COMPUSTAT and CRSP with information on firm level institutional ownership, available from Thomson Reuters 13F files. The latter are available from 1981. We then use four-digit SIC codes to merge information on tariff cuts. We consider only industries for which the U.S. Customs collects duties, which implies that our sample concentrates on firms whose primary SIC code is in manufacturing (< 4000).

We obtain mergers and acquisitions activities (M&As) from SDC Platinum and use EXECUCOMP to explore whether firms with more short-term investors adapt to changing market conditions by turning over their executive team. Other data sources are described as we introduce them in the analysis.

Since we collect information on tariff rate cuts up to 2011, our final sample period is 1981-2011. Table 1 summarizes the main variables, such as firms' sales growth, growth rate of gross property, plant, and equipment (PPE), Tobin's Q, and ROA. Detailed variable definitions are in the Internet Appendix.

4.2 Measuring Investor Horizon

An investor's horizon is generally considered an exogenous characteristic of the investor's trading style, which depends on the investor's organizational structure and therefore does not change (or changes slowly) over time. Investors' trading horizons are revealed by their trading behavior because institutional investors with short trading horizons buy and sell more frequently than long-horizon investors.

To measure short-term institutional ownership, we use two proxies for investor horizon commonly used in the literature. Our main proxy for institutional investor horizon exploits Bushee's

classification of 13F investors (Bushee, 1998 and 2001; Bushee and Noe, 2000). Bushee distinguishes between transient investors, dedicated investors, and quasi-indexers. Transient investors have high portfolio turnover and highly diversified portfolios. To the contrary, dedicated investors and quasi-indexers guarantee long-term ownership to firms. We define the extent of short-term institutional ownership of a firm, *% Short-term Investors*, as the proportion of shares outstanding held by transient investors during the year preceding the tariff rate cut.

We also compute an alternative proxy for institutional investors' horizon—*Churn*—similarly to Gaspar, Massa, and Matos (2005) and Cella, Ellul, and Giannetti (2013), as follows. First, we measure an investor's quarterly portfolio turnover as the minimum of the absolute values of buys and sells made by institutional investor j during quarter t, divided by the total holdings at the end of quarter $t-1$, with buys and sells being measured using end-of-quarter $t-1$ prices. As Cella, Ellul, and Giannetti (2013) report, there is large variation in turnover across 13F institutional investors. Institutions with a churn ratio in the 5th percentile on average turn over about 2% of their portfolio in a quarter, while institutions in the 95th percentile turn over more than 70% of their holdings in a quarter. Next, to obtain a firm's yearly measure of short-term institutional ownership, we take a weighted average of the portfolio turnover of institutional investors in a firm, using as weight the proportion of shares outstanding held by investor j at the end of year t. This definition implicitly assumes that non-institutional investors in a firm generate less turnover. Since we control for the proportion of shares outstanding held by institutional investors, this assumption is innocuous.

The proportion of short-term institutional owners of a firm is on average 10%, but there is large variation across firms. While the short-term investors holding stocks in a firm change quickly, the extent to which a firm attracts short-term institutional investors is stable over time because short-term investors trade with each other. In our sample, the correlation between the proportion of short-term investors holding stocks in a firm over the current year and during the previous year exceeds 80%. This correlation remains in excess of 50% if we consider the proportion of short-term investors holding stocks in the firm four years earlier.

Table A.1 in the Internet Appendix shows some salient characteristics of the sample firms with different levels of short-term institutional ownership. Almost by construction, firms with more short-

term investors also have greater institutional ownership. The two groups of firms share similar characteristics, such as size captured by number of employees or total assets. Other firm characteristics, such as leverage, even though statistically different, are not necessarily economically different between the two subsamples.

5. Main Results

5.1 Reactions to Large Tariff Cuts

Table 2 explores the impact of the large tariff cuts on firms' sales growth, and the firms' reactions in terms of investment. Panel A shows that on average, there is a drop in the growth rate of firm sales after large tariff rates cuts. However, the sales of firms with *ex ante* larger proportion of short-term investors drop to a lower extent and even increase for firms with short-term institutional ownership above the average. Thus, while some firms succumb to competition, others seize opportunities by stealing market shares from their domestic competitors.

This result holds for both measures of investor horizon. It is also robust when we control for the differential impact of the tariff cuts for firms with different *ex ante* levels of institutional ownership. The effect cannot depend on the fact that short-term investors select firms whose sales are growing (independently from the tariff cut) as we control for the direct effect of short-term institutional ownership throughout the analysis. We also control for past profitability, which may affect firms' reaction to the shocks. Furthermore, our results continue to hold when we include firm fixed effects or interactions of industry and year fixed effects, indicating that time-invariant firm characteristics or industry-specific shocks cannot bias our estimates.

Our finding is not only statistically, but also economically significant. The coefficient estimate in column 4 of Table 2 implies that following a large tariff cut, a firm with one standard deviation larger proportion of short-term institutional ownership has a drop of sales nearly 2.3 percentage points smaller than that of an otherwise similar firm. This is a large effect considering that the average firm in the sample has a growth rate of 9%. The effect is even larger in column 6, where we use the average portfolio turnover of the institutional investors in a firm (*Churn*) to proxy for the short-term orientation

of the firm's shareholders: a firm with a one-standard-deviation larger *Churn* has a sales growth drop almost 5 percentage points smaller than that of an otherwise similar firm.

In Panels B of Table 2, following import tariff cuts, firms with more short-term institutional investors appear to invest more than other affected firms, as captured by the higher growth rates of gross PPE. This behavior is consistent with theories of strategic investment suggesting that increasing capacity, rather than downsizing, is an optimal response to an increase in competition for profit-maximizing firms (Spence, 1977; Dixit, 1980).

The effects are not only statistically, but also economically significant. In column 4 of Panel B, a one-standard-deviation increase in the percentage of short-term institutional ownership corresponds to a 3.1 percentage point smaller drop in investment, a large number considering that the PPE growth of the average firm in the sample is 10.6%.

Some of the control variables provide interesting insights. Institutional ownership is negatively related to sales and PPE growth, on average and to an even greater extent, after the tariff cuts. This is consistent with the findings of Harford, Kecskes, and Mansi (2018) that long-term institutional ownership is associated with lower firms' investment. It is thus unsurprising that holding constant short-term institutional ownership, firms that differ in the extent of long-term institutional ownership grow less. While this may be desirable in normal times, as Harford, Kecskes, and Mansi (2018) argue, the empirical evidence we provide thereafter implies that lower investment hamper firms' long-term performance following changes in economic environment.

Table 3 provides more direct evidence on the causal mechanism behind our hypothesis. We present two types of tests. First, we use analysts' forecasts to test the mechanism behind our hypothesis. Our conjecture is that firms with short-horizon investors perform better following tariff cuts because managers want to signal that they will not end up as losers and pay more effort or are more likely to change strategies. Such an explanation would imply that not only do analysts expect higher earnings from firms with short-term investors following tariff cuts, but also that the left tail of analysts' forecasts should be higher for firms with more short-horizon institutional investors. This is precisely what we find in Panel A of Table 3. In column 1, analyst consensus forecasts appear to be higher for the earnings of firms with higher short-term institutional ownership following the tariff cuts. Importantly, in column

2, the bottom quintile of the analysts' consensus forecasts is higher for these firms, suggesting that the probability that they will end up as a loser in the new economic environment is perceived to be lower.

Second, we consider that managers are expected to respond to short-horizon investors' threat of exit following poor performance because their payoffs are affected by the stock price. We would expect CEOs whose compensation and wealth are more closely linked to the stock price to pay more effort in avoiding *en masse* exits of short-term investors. We thus test whether following the tariff cuts, the responses of firms with short-term investors are stronger when the CEO has a high wealth-performance sensitivity.

To measure the wealth-performance sensitivity, we use the dollar change in CEO wealth for a 100 percentage-point change in firm value, divided by the annual flow compensation, from Edmans, Landier, and Gabaix (2009). The key advantage of this incentive measure is that, empirically, it is independent of firm size, and thus comparable across firms and over time. In Panel B of Table 3, we define a firm to have high wealth-performance sensitivity if the wealth-performance sensitivity is in the top tercile of the sample. As is consistent with the causal mechanism behind our hypothesis, firms with more short-term institutional ownership, in which CEOs' have higher wealth-performance sensitivity, have lower sales drops and reduce investment to a lower extent following the tariff cuts, even though the triple interaction term in the equation for PPE growth is not significant at conventional level in column 4.

5.2 Long-Term Effects

Managers subject to short-term investors' pressure may take actions that improve firm performance in the short run at the cost of long-term performance (Graham, Harvey, and Rajgopal, 2005). One may wonder whether firms also do so in response to an increase in competition. To address this question, we explore the long-term effects of short-term institutional ownership on firms in industries affected by large tariff cuts using Model (2) in Subsection 3.2. As explained there, in these tests, the dummy $post\ cut_{i,t}$ takes value one following a tariff cut in an industry.

In columns 1-4 of Table 4, large tariff cuts lead to large drops in firms' valuations. However, firms with more short-term institutional ownership still have relatively higher valuations than other firms in the same industry after the tariff cut. After the tariff cut, these firms also continue to have higher

profitability (columns 5-8). The results are invariant whether we include firm and year fixed effects or interactions of industry and year fixed effects. The effects are economically sizable. For instance, in column 3 and column 7, a one-standard-deviation increase in short-term institutional ownership translates into 14.8 percentage points higher Tobin's Q and 2.7 points higher ROA. This indicates that the lower drop in the growth rates of sales and PPE following large tariff cuts have long-term benefits for shareholders.

6. How Do Firms Maintain Comparative Advantage?

In this subsection, we explore how firms with more short-term institutional ownership manage to achieve better long-term performance than their competitors following large tariff cuts.

6.1 New Product Releases and Innovation Activities

Firms may succeed in preserving market share by timely releasing new products when competition intensifies. We test whether firms introduce new products using data from Mukherjee, Singh, and Zaldokas (2017), who construct measures of new product announcements combining textual analysis with stock market announcement returns to capture the quality of new products. The first proxy is based on the number of a company's press releases that are tagged under the subject "New Products" in Lexis Nexis during a year. The proxy counts a firm's number of announcements of new product introductions with cumulative abnormal returns above the 75th percentile of other new product announcements during the year after adjusting for firm size and book-to-market ratio. Columns 1 of Panel A in Table 5 shows that in the year following a large tariff cut, firms with more short-horizon investors introduce more new products. A one-standard-deviation increase in short-term institutional ownership is associated with 0.043 more product introductions following tariff cuts.[6] Column 2 considers how the equity market respond to all product announcements. The dependent variable is the sum of all positive cumulative abnormal returns of new product introductions over the year. We find that a one-standard-deviation increase in short-term institutional ownership is associated with 0.002 higher abnormal returns when product announcements occur following large tariff cuts.[7]

[6] The effect is computed as (0.736-0.306) × 0.099 = 0.043.
[7] The effect is computed as (0.054-0.030) × 0.099 = 0.002.

New products may give firms only a temporary competitive advantage if not sustained by research efforts to diversify and improve product quality in the long-term, because competitors may catch up and copy the products. Panel B of Table 5 shows that firms with more short-horizon investors boost their long-term research efforts when competition intensifies. In columns 1 and 2, the probability that firms with more short-horizon investors files for a trademark permanently increases following the tariff cuts. Trademarks are words or symbols that firms use to differentiate their products from those of the competitors and to generate customers' loyalty (Dinlersoz, Goldschlag, Myers, and Zolas, 2018). Thus, this test provides clear evidence that firms with higher short-horizon institutional ownership put stronger efforts in shielding from competition following tariff cuts.

We also consider more traditional measures of innovation strategy. As is consistent with previous literature, firms with more short-term institutional ownership tend to underinvest in R&D (Bushee, 1998), as made evident by fewer and less cited patents. However, when tariff cuts increase competition, these firms appear to close the gap in innovation efforts. Thus, following the year subsequent to the introduction of the tariff cuts, they file more patents (columns 3-4 of Table 5 Panel B), and their patents are more cited (columns 5-6), suggesting that they attempt to produce more path-breaking knowledge. This conclusion is also supported by the fact that a larger fraction of their patents can be classified as general (columns 7-8) because they touch upon many industries and as exploratory (columns 9-10), meaning that they have a lower overlap with the patents previously produced by the firm. Exploratory patents are typically believed to be broader in scope and to allow firms to enter in new technology classes (Gao, Hsu, and Li, 2018; Fitzgerald, Balsmeier, Fleming, and Manso, 2019). These efforts allow firms with more short-term institutional ownership to maintain comparative advantage in the years to come, as is consistent with our earlier results on long-term performance.

6.2 Mergers and Acquisitions

We also consider firms' M&A activities to explore whether firms try to enter new industries to diversify their products and technologies. Panel C of Table 5 reveals that firms with more short-term institutional ownership do not participate in M&As (column 1) nor restructure through divestitures (column 2) more than other firms. Instead, they engage in diversifying acquisitions (columns 3-6). We

measure diversifying acquisitions as acquisitions of firms in a different three-digit SIC code from the one of the firm.

This finding suggests that firms with more short-term institutional investors attempt to ease import competition by accessing new markets and reinventing their business model. This is consistent with empirical studies suggesting that firms choose the industries in which they operate to create comparative advantage and highlight a situation in which corporate diversification is beneficial to shareholder value (Maksimovic and Phillips, 2013).

6.3 Executive Turnover

Firms with more short-horizon investors may also attempt to adjust to market conditions by acquiring new talent that is better able to face the new economic environment. We thus investigate whether firms with more short-term institutional ownership turn over the executive team to a larger extent.[8]

Panel D of Table 5 shows that executive turnover increases more in firms with more short-horizon investors in the aftermath of tariff cuts. This together with our earlier findings contributes to explain why firms with more short-term institutional ownership can achieve better long-term performance than other firms in the new competitive environment.

7. Robustness

This section presents a number of robustness checks in order to evaluate the merit of alternative interpretations. For brevity, we present the outcome of these robustness tests for sales growth and PPE growth.

7.1 Preexisting Differences in Firm Performance

Our estimates allow for a causal interpretation of the empirical evidence as long as firms with greater presence of short-term investors did not behave differently than other firms before the large tariff cuts. To test this identifying assumption, we investigate how sales and PPE growth evolve for

[8] Since EXECUCOMP provides information on the executive team only for S&P1500 firms, the sample is greatly reduced. For this reason, we include a smaller set of fixed effects.

firms with different levels of short-term institutional ownership in the three years before and after the tariff cuts.

In Table 6, we find no differences in the growth rates of sales and PPE between firms with different levels of short-term institutional ownership during the three years preceding the tariff cuts. Hence, there is no evidence of pre-existing trends. Differences emerge only in the year following the tariff cuts. We also find no evidence that firms with less short-term institutional ownership recover market shares or expand investment during the following years, indicating that the increase in market share of firms with more short-term institutional ownership relative to other firms is permanent. Overall, this evidence fully supports our identifying assumption and interpretation of the empirical findings.

7.2 Do Short-Term Investors Select Better Firms?

While our tests include the direct effect of short-term institutional ownership to control for short-term investors' ability to select better companies, a possible concern is that short-term institutional investors select firms that they anticipate to be better at coping with competitive pressure. In this case, reverse causality could undermine our interpretation of the empirical evidence.

Such a criticism has limited relevance in our context. In all our specifications, short-term institutional ownership is measured one year before the tariff cut and tends to capture a firm's propensity to attract short-term institutional investors, which varies little over time, because these investors trade with each other. The identity of the short-term investors, which could have selected some firms based on their expectations of future performance, is likely to have already changed at the time of the tariff cut, considerably limiting any concerns about reverse causality problems. Our results are also robust to the inclusion of firm fixed effects, which absorb any time-invariant firm characteristics.

We also perform several additional tests. First, in Table 7, we lag the ownership variables by four years. It is unlikely that tariff cuts, and the firms' ability to cope with competitive pressure, could have been anticipated so far in advance. As mentioned before, this is particularly unlikely in our context because the identity of the short-term investors changes during a five-year period even though the extent to which different firms attract short-term investors does not because short-term investors trade with each other. For this reason, our estimates are unlikely to be biased by selection problems. It is therefore

reassuring to find from columns 1-4 of Table 7 that firms that had more short-term institutional investors five years before the tariff cuts grow faster and invest more in the year following the shock.

Second, in columns 5-8 of Table 7, we focus on firms with a larger fraction of short-term investors 3-4 years before the shock, but not at the time of the shock. We consider in the sample only firms that experienced a 50% decrease in the proportion of short-term institutional ownership and all firms that had relatively low institutional ownership at $t-4$ (defined as a fraction of short-term investors smaller than 4%). This sample provides an excellent placebo as presumably these firms have characteristics that attract short-term investors, but do not experience their pressure of exit at the time of the tariff cut. It is therefore comforting that these companies do not exhibit any differential response to the tariff cut.

Third, we exploit an exogenous increase in short-term institutional ownership.[9] In 2001, the New York Stock Exchange, the American Stock Exchange and NASDAQ terminated the system of fractional pricing and reduced the minimum tick size for quotes and trades to pennies. This regulatory change led to an increase in stock liquidity and short-term institutional ownership (Bessembinder, 2003; Fang, Tian, and Tice, 2014).

To construct instruments, we conjecture that the decimalization may have affected to a larger extent liquidity in large and mid-cap companies, which are more likely to attract institutional trading. To identify large and mid-capitalization companies we sort firms in three terciles based on their stock market capitalization in 2000, the year before the decimalization, and then define as large- (mid-) capitalization stocks in the top (mid) tercile.

Panel A of Table 8 shows that the increase in institutional ownership was particularly pronounced in large and mid-cap stocks, suggesting that liquidity improved to a larger extent in stocks with these characteristics. The direct effect of the dummy *Decimalization* is absorbed by the time fixed effects. Since we need to instrument both *% Short-term Investors* and $cut \times$ *% Short-term Investors*, columns 2 and 3 present two first stages. The results of the Cragg-Donald *F* test show that our instruments are not weak. The second stage estimates in Panel B of Table 8 show that our results are

[9] In results we do not report for brevity, our results are robust if we exploit exogenous variation due to Russell 2000 or S&P1500 index inclusions, controlling for the effects of other changes in institutional ownership.

unchanged when we exploit exogenous variation in short-term institutional ownership, confirming that reverse causality is unlikely to drive our findings.

7.3 Firm Exit

Selection problems could also arise if firms with more short-horizon investors were more likely to exit the dataset because of bankruptcies, delistings, or acquisitions after large tariff cuts. In this case, the sample of firms with short-horizon investors would be biased towards better firms especially after changes in economic environment.

To evaluate this alternative explanation, we compare the rate of exit either due to bankruptcies and delistings (death) or including also acquisitions (exit) for firms with different short-term institutional ownership.[10] The exit (death) rate of firms with a proportion of short-horizon investors above the median is 0.4 (0.1) percent; the corresponding death and exit rates for firms with share of short-horizon investors below the median are 3 percent and 1 percent, respectively. Thus, the exit and death rates are lower, not higher, for firms with disproportionately more short-horizon investors, suggesting that any selection problems should work against our findings. More importantly, this finding further supports out interpretation of the empirical evidence that firms with relatively less short-term institutional investors are less adaptable and succumb when economic shocks occur.

7.4 Does Short-Term Institutional Ownership Drop Following the Tariff Cuts?

Firms with *ex ante* more short-term investors could suffer from tariff cuts less than others not because short-term investors spur beneficial changes, but because short-term institutional ownership decreases in the aftermath of the tariff cut. These firms could then revert to long-term strategies.

Table A.2 in the Internet Appendix regresses $short\ term\ IO_{f,i,t+1}$ on the $post\ cut_{i,t}$ dummy and a number of controls. There is no evidence that short-term institutional ownership decreases following the tariff cut. If anything, short-term institutional ownership increases, though the increase is not significant once we control for firm characteristics (columns 2-3 and 5-6).

7.5 Omitted Factors and Alternative Mechanisms

[10] Specifically, following Bhattacharya, Borisov, and Yu (2015), we define the death of a firm if its CRSP delisting code indicates a liquidation (400-490), that the firm has been dropped (500-591), or expired (600-610). The exit of a firm also includes mergers (200-290) and exchanges (300-390).

Endogeneity problems may also arise because firms with higher short-term institutional ownership have unobserved (or uncontrolled) characteristics that drive their differential responses to increased competitive pressure. While it is impossible to provide a statistical demonstration that this is not the case, it is comforting that our estimates appear robust across a variety of specifications, which consider different sets of controls and fixed effects.

In what follows we evaluate possible alternative mechanisms that may drive our findings. First, we consider that firms with more short-term institutional ownership may be differentially exposed to trade shocks, for instance, because they already compete with foreign firms in export markets or because they have foreign subsidiaries. Columns 1 to 4 of Panel A in Table 9 show that our results are unaffected if we take into account firms' export and multinational status.

We also consider that some firms may have technologies and products that make them more unique. If short-horizon investors were inclined to invest in these unique firms, our results could depend spuriously on differences in the technology and products of these firms. In columns 5-6 of Panel A, we proxy for the uniqueness of a firm's product using the firm's profit margin and we test whether this affects its subsequent performance and reaction to the tariff cuts. While firms with higher profit margins appear to have better performance following tariff cuts, the coefficient on the interaction between short-term institutional ownership and the cut dummy is qualitatively and quantitatively unaffected.

We also consider the uniqueness of a firm's technology because firms with unique technologies are unlikely to be substituted by foreign entrants. Following previous literature (Valta, 2012 and Xu, 2012), we capture how unique a firm's technology is in comparison to that of other firms within the industry considering how the firm's capital-labor intensity differs from the median capital-labor intensity of other firms in the industry. Similarly, we consider that firms that spend more on R&D are shielded from the effects of foreign competition (Hombert and Matray, 2018) and control for R&D intensity. Considering these differences in firms' technologies before the tariff cuts and their effects on the firms' reactions to the tariff cuts leaves our results unchanged (columns 1-4 of Panel B of Table 9). In the same vein, short-term investors could select larger firms. These firms in turn might be better suited to adjust to different economic environments. Columns 5-6 of Panel B dispel these concerns.

We also consider the strategic interaction of firms within an industry. Financially strong firms can adopt aggressive competitive strategies that improve their performance relative to other firms in the same industry (Bolton and Scharfstein, 1990). This may be even more the case when competition intensifies (Valta, 2012; Xu, 2012; Dasgupta, Li, and Wang, 2017). A potential threat to our identification would thus arise if firms with short-horizon investors happened to be more financially flexible and less subject to predation. It is therefore comforting that controlling for the differential reactions of firms with different cash-holdings (columns 1-2 of Panel C), leverage (columns 3-4 of Panel C) or rating status (columns 5-6 of Panel C) does not alter our conclusions that firms with short-horizon investors perform better following large tariff cuts.

Another possible concern is that short-term institutional ownership could be correlated with other characteristics of the firms' ownership structure, which have an independent effect on the way firms react to shocks. For instance, short-term investors could select firms with fewer family blockholders. If the latter stifle change, the effect we highlight could be spurious. To evaluate the merit of this alternative explanation, we obtain a snapshot of data on family block ownership from Orbis.[11] We then evaluate whether these firms react differently to shocks. In columns 1-2 of Panel D in Table 9, we find no evidence that this is the case.

We also consider whether firms with short-horizon investors have poor governance and perform better when competition increases. In columns 3-4 of Panel D, we interact the dummy *cut* with a dummy that takes value one if the Gompers, Ishii, and Metrick (2003) corporate governance index is in the top quartile, indicating poor corporate governance. Our results are unaffected.

In Panel E of Table 9, we explore whether other features of institutional ownership may be driving our findings. For instance, long-term investors are heterogeneous and include passive investors and dedicated, active investors. Dedicated investors may be able to pressure the firms they own to the

[11] When studying family and individual block ownership, it is common to rely on a cross-section, as family ownership varies little over time (McConnell and Servaes, 1990).

same extent as short-term investors. We explore this possibility in columns 1-2. We find no evidence that dedicated investors yield the same benefits as short-horizon investors.[12]

We also consider whether the mechanism we propose is related to investor activism. We view short-term investors' governance through exit as a complement to governance through voice, which is generally performed by activist hedge funds. Activist hedge funds have holding periods lasting several years and do not systematically target industries whose competitive environment has radically changed (Brav et al., 2008). To verify empirically that the mechanisms are distinct, we use activist campaigns from Edmans, Fang and Zur (2013) and define a dummy that takes value equal to one if in the year following the tariff cut, a firm is target of an activist campaign. In columns 3-4, our findings are also unaffected.

Finally, dedicated, active owners typically hold larger stakes in companies as their activities have high fixed costs (Chen, Harford, and Li, 2007). Therefore, we test whether the differential performance may arise because of differences in institutional ownership concentration. In columns 5-6, our results are unaffected if we include an interaction of the Herfindahl index of institutional ownership with the dummy cut.

Overall, while the evidence falls short of a statistical demonstration, we consider a comprehensive set of alternative mechanisms that could lead to differential reactions to tariff cuts. This gives us confidence that our findings are unlikely to be driven by omitted firm characteristics associated with short-term institutional ownership.

8. Conclusions

Firms with disproportionately more short-horizon investors are known to focus on short-term performance. In normal times and static economic environments, this behavior may lead to inefficient short-termism. However, in the aftermath of shocks that alter a firm's economic environment and demand rapid changes in business strategy, the managers of firms with more short-horizon investors

[12] In the classification of Bushee (1998 and 2001), an investor that is not transient or dedicated is considered a passive investor, which follows an index. Therefore, the estimates in columns 1-2 also imply that our results are not due to passive investors.

adapt to the new business environment better than other similarly affected firms. By performing diversifying acquisitions, introducing new products, and changing the executive team, firms with relatively more short-horizon investors introduce new products and enter new markets in a way that enhances their long-term performance.

These results suggest that investors' short horizons may be particularly beneficial in fostering firm performance in dynamic economic environments. Under these conditions, firms and economies with short-horizon investors may appear more dynamic and avoid stagnation.

These benefits are important even in the light of the costs associated with short-termism highlighted in previous literature. The process of globalization and the introduction of more radical innovations increase the incidence of shocks to which the benefits of short-term ownership are associated. More crucially, changes in economic environment have large downside for firms and economies. Firms that fail to adapt may become "zombies", increasing capital misallocation and dragging down the overall macroeconomic performance as in Japan (Caballero, Hoshi, and Kashyap, 2008). Short-term investors may thus be an antidote to economic sclerosis.

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Table 1: Summary Statistics

This table reports summary statistics for our sample.

	# obs.	Mean	STD	25th	Median	75th
Sales Growth	24,568	0.092	0.334	-0.041	0.083	0.226
PPE Growth	24,931	0.106	0.252	0.016	0.076	0.178
ROA	25,220	-0.093	0.447	-0.077	0.033	0.082
Tobin's Q	27,665	2.158	1.539	1.118	1.578	2.568
% Short-term Investors	25,531	0.100	0.099	0.020	0.071	0.152
Churn	28,380	0.029	0.027	0.006	0.022	0.047
% Institutional Investors	28,301	0.352	0.278	0.090	0.303	0.601
Total Assets ($MM)	28,138	3,388	17,293	34	142	882
Cash	28,129	0.239	0.251	0.038	0.144	0.364
Leverage	28,079	0.481	0.433	0.235	0.419	0.594
R&D	25,177	0.118	0.684	0.001	0.039	0.112
Family Block Ownership	28,380	0.074	0.157	0.000	0.000	0.068
High G Index	28,380	0.075	0.263	0.000	0.000	0.000
% Dedicated Investors	28,380	0.050	0.067	0.000	0.021	0.078
Investor Activism	28,380	0.004	0.062	0.000	0.000	0.000
Ownership Concentration	28,380	0.207	0.253	0.047	0.100	0.259
Profit Margin	27,618	1.000	1.439	0.299	0.617	1.248
Technological Uniqueness	27,006	0.279	1.580	0.009	0.028	0.074
MNC	27,989	3.896	5.489	1.000	1.000	6.000
Exporting Firm	28,380	0.241	0.428	0.000	0.000	0.000
Rated	28,380	0.858	0.349	1.000	1.000	1.000
M&A	28,370	0.213	0.410	0.000	0.000	0.000
Divestiture	28,370	0.092	0.288	0.000	0.000	0.000
Diversifying M&A	28,370	0.155	0.362	0.000	0.000	0.000
Executive Turnover	8,259	0.141	0.198	0.000	0.125	0.200
# Major New Products	17,705	0.293	1.294	0.000	0.000	0.000
Sum of All Positive CARs	17,705	0.026	0.111	0.000	0.000	0.000
Dummy for Trademarks	28,380	0.130	0.336	0.000	0.000	0.000
Ln(Patents)	19,909	1.446	1.696	0.000	0.701	2.398
Ln(Cites)	19,909	1.239	1.391	0.000	0.643	2.465
Generality	8,473	0.572	0.268	0.444	0.640	0.781
Exploratory	11,988	0.710	0.353	0.500	0.889	1.000
Consensus Forecast	10,458	0.907	1.543	0.162	0.710	1.482
Bottom Quintile Consensus	10,458	0.659	1.524	0.013	0.560	1.282

Table 2: Response to Shocks

This table explores firms' responses to large tariff cuts. The dependent variable is sales growth in Panel A and PPE growth in Panel B. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors clustered at the industry×year level are in parenthesis. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Sales Growth

	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.215***	0.200***	0.205***	0.232***	0.242**	
	(0.063)	(0.075)	(0.064)	(0.085)	(0.101)	
Cut	-0.019**	-0.017*				
	(0.009)	(0.010)				
% Short-term Investors	0.175***	0.037	0.190***	0.415***	0.176***	
	(0.031)	(0.044)	(0.029)	(0.038)	(0.054)	
Cut × Churn						1.833***
						(0.703)
Churn						2.512***
						(0.252)
% Institutional Investors				-0.114***	-0.109***	-0.229***
				(0.013)	(0.027)	(0.022)
Cut × % Institutional Investors				-0.019	-0.044	-0.092
				(0.028)	(0.029)	(0.058)
ROA	0.161***	0.283***	0.143***	0.153***	0.256***	0.136***
	(0.013)	(0.018)	(0.013)	(0.013)	(0.018)	(0.011)
Observations	22,491	22,232	21,957	21,957	21,690	23,972
R-squared	0.102	0.245	0.209	0.213	0.349	0.198
Industry FE	YES	NO	NO	NO	NO	NO
Firm FE	NO	YES	NO	NO	YES	NO
Year FE	YES	YES	NO	NO	NO	NO
Industry x Year FE	NO	NO	YES	YES	YES	YES

Table 2 continued.

Panel B: PPE Growth

	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.238***	0.225***	0.225***	0.314***	0.284***	
	(0.046)	(0.048)	(0.048)	(0.064)	(0.065)	
Cut	-0.013**	-0.013**				
	(0.006)	(0.006)				
% Short-term Investors	0.256***	0.256***	0.256***	0.490***	0.331***	
	(0.024)	(0.033)	(0.025)	(0.033)	(0.043)	
Cut × Churn						2.630***
						(0.491)
Churn						2.827***
						(0.214)
% Institutional Investors				-0.119***	-0.064***	-0.237***
				(0.011)	(0.022)	(0.020)
Cut × % Institutional Investors				-0.051**	-0.048**	-0.166***
				(0.024)	(0.024)	(0.044)
ROA	0.085***	0.125***	0.077***	0.087***	0.114***	0.077***
	(0.009)	(0.013)	(0.009)	(0.009)	(0.014)	(0.008)
Observations	22,823	22,566	22,284	22,284	22,020	24,335
R-squared	0.088	0.269	0.173	0.180	0.347	0.163
Industry FE	YES	NO	NO	NO	NO	NO
Firm FE	NO	YES	NO	NO	YES	NO
Year FE	YES	YES	NO	NO	NO	NO
Industry x Year FE	NO	NO	YES	YES	YES	YES

Table 3: Testing the Causal Mechanism

Panel A: Analyst Forecasts

This table explores how analyst consensus vary for industries experiencing large tariff cuts. The dependent variable is analyst forecast consensus in column 1 and the bottom quintile consensus in column 2. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors clustered at the industry×year level are in parenthesis. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variables	Consensus Forecast	Bottom Quintile Consensus
	(1)	(2)
Cut × % Short-term Investors	0.967***	0.837**
	(0.327)	(0.325)
% Short-term Investors	0.675***	0.812***
	(0.216)	(0.221)
% Institutional Investors	-0.485***	-0.667***
	(0.128)	(0.127)
Cut × % Institutional Investors	-0.329**	-0.311**
	(0.146)	(0.149)
ROA	1.158***	1.298***
	(0.128)	(0.143)
Observations	9,649	9,649
R-squared	0.803	0.790
Firm FE	YES	YES
Industry x Year FE	YES	YES

Table 3 continued.

Panel B: CEO Wealth-Performance Sensitivity

This table explores how firms' responses to large tariff cuts depend on the sensitivity of the CEO's wealth to the stock price. The dependent variable is sales growth in columns 1-2 and PPE growth in columns 3-4. "High WP" is a dummy variable equal to one if the wealth-performance sensitivity is in the top tercile during a year and zero otherwise. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors clustered at the industry×year level are in parenthesis. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth		PPE Growth	
	(1)	(2)	(3)	(4)
Cut × % Short-term Investors	0.162**	0.122	0.196***	0.172***
	(0.068)	(0.082)	(0.049)	(0.050)
High WP × Cut × % Short-term Investors	0.203**	0.213**	0.135*	0.127
	(0.085)	(0.089)	(0.081)	(0.084)
High WP × % Short-term Investors	0.154***	0.050	0.109*	-0.030
	(0.054)	(0.069)	(0.060)	(0.068)
High WP	-0.009	0.020*	-0.001	0.039***
	(0.009)	(0.012)	(0.009)	(0.010)
% Short-term Investors	0.167***	0.041	0.237***	0.261***
	(0.031)	(0.045)	(0.025)	(0.037)
ROA	0.141***	0.255***	0.075***	0.113***
	(0.013)	(0.018)	(0.009)	(0.014)
Observations	21,957	21,690	22,284	22,020
R-squared	0.210	0.349	0.173	0.348
Firm FE	NO	YES	NO	YES
Industry x Year FE	YES	YES	YES	YES

Table 4: Long-Term Effects

The dependent variable is Tobin's Q in columns 1-4 and ROA (t+1) in columns 5-8. The dummy *Post Cut* takes value equal to one following the tariff cut. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Tobin's Q				**ROA (t+1)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post Cut × % Short-term Investors	2.092***	0.970***	1.496***		0.234**	0.235**	0.275**	
	(0.302)	(0.365)	(0.334)		(0.091)	(0.112)	(0.121)	
Post Cut	-0.262***	-0.370***	-0.462***		-0.012	-0.012	-0.022	
	(0.051)	(0.058)	(0.074)		(0.011)	(0.013)	(0.018)	
% Short-term Investors	-0.247	0.667*	0.134		-0.138	-0.139	-0.180	
	(0.289)	(0.345)	(0.315)		(0.087)	(0.105)	(0.114)	
Post Cut × Churn				5.559***				2.041***
				(1.864)				(0.597)
Churn				0.941				-0.576
				(1.711)				(0.506)
% Institutional Investors	-0.611***	-1.174***	-0.822***	-0.788***	-0.037**	-0.036	-0.016	-0.025
	(0.086)	(0.165)	(0.165)	(0.213)	(0.018)	(0.032)	(0.036)	(0.048)
Post Cut × % Institutional Investors		0.701***	0.476***	0.406**		-0.001	-0.014	-0.116**
		(0.155)	(0.157)	(0.203)		(0.032)	(0.037)	(0.053)
ROA	0.063	0.066	0.063	-0.027				
	(0.053)	(0.053)	(0.056)	(0.046)				
Leverage	0.272***	0.279***	0.294***	0.340***	-0.054***	-0.054**	-0.053**	-0.059***
	(0.050)	(0.050)	(0.052)	(0.045)	(0.021)	(0.021)	(0.022)	(0.022)
Size	-0.291***	-0.293***	-0.366***	-0.336***	0.018***	0.018***	0.023***	0.025***
	(0.018)	(0.018)	(0.019)	(0.018)	(0.006)	(0.006)	(0.007)	(0.007)
Observations	24,661	24,661	24,107	26,739	22,437	22,437	21,884	24,223
R-squared	0.623	0.624	0.678	0.687	0.640	0.640	0.668	0.682
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	NO	NO	YES	YES	NO	NO
Industry x Year FE	NO	NO	YES	YES	NO	NO	YES	YES

Table 5: Mechanism

Panel A: New Products

The dependent variable is "# Major New Products" in column 1 and "Sum of All Positive CARs" in column 2. "# Major New Products" is the number of announcements of new products with cumulative abnormal returns above the 75 percentile year by year after adjusting for firm size and book-to-market ratio. "Sum of All Positive CARs" is the sum of all positive cumulative abnormal returns of new product introductions over the year. Both are defined in Mukherjee, Singh, and Zaldokas (2017). All models include a constant, and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors reported in parentheses are clustered at the industry×year level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	# Major New Products	Sum of All Positive CARs
	(1)	(2)
Cut × % Short-term Investors	0.736**	0.054*
	(0.342)	(0.029)
% Short-term Investors	-0.306*	-0.030*
	(0.171)	(0.017)
% Institutional Investors	-0.217**	-0.021**
	(0.096)	(0.009)
Cut × % Institutional Investors	-0.330**	-0.024*
	(0.160)	(0.013)
ROA	0.017	-0.006
	(0.027)	(0.004)
Observations	15,429	15,429
R-squared	0.628	0.536
Firm FE	YES	YES
Industry x Year FE	YES	YES

Table 5 continued.
Panel B: Trademarks and Patents

The dependent variable is a dummy that takes value equal to one if the firm files at least one trademark at t+1 in columns 1-2, the natural logarithm of number of patents a firm has filed at year t+1 and is eventually granted in columns 3-4, the natural logarithm of number of citations per patent filed at year t+1 in columns 5-6, the generality of patents filed at year t+1 in columns 7-8, and a variable measuring how exploratory patents filed at year t+1 are in columns 9-10. The generality of patents is computed as one minus the Herfindahl index of the three-digit technology class distribution of all the patents that cite a given patent. A patent is categorized as exploratory if 60% or more of its citations are based on new knowledge outside of a firm's existing expertise (Gao, Hsu and Li 2018). The dummy variable *Post Cut* takes value equal to one following the tariff cut. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Trademarks		Ln(Patents)		Ln(Cites)		Generality		Exploratory	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Post Cut × % Short-term Investors	0.130**	0.110*	0.733***	0.520**	0.429	0.826**	0.298***	0.206*	0.095	0.219*
	(0.058)	(0.066)	(0.229)	(0.249)	(0.310)	(0.324)	(0.101)	(0.119)	(0.122)	(0.128)
Post Cut	-0.007		-0.043		0.138**		0.009		0.047**	
	(0.009)		(0.042)		(0.060)		(0.016)		(0.023)	
% Short-term Investors	-0.091*	-0.074	-0.686***	-0.446*	0.007	-0.189	-0.313***	-0.219**	0.005	-0.014
	(0.049)	(0.055)	(0.211)	(0.231)	(0.278)	(0.286)	(0.093)	(0.108)	(0.113)	(0.117)
% Institutional Investors	0.001	-0.001	-0.046	-0.091	-0.152	-0.224*	0.034	-0.049	0.023	-0.007
	(0.023)	(0.026)	(0.117)	(0.122)	(0.138)	(0.136)	(0.046)	(0.045)	(0.054)	(0.052)
Post Cut × % Institutional Investors	-0.005	0.013	-0.046	-0.012	-0.007	-0.012	-0.069	0.047	-0.110*	-0.091*
	(0.026)	(0.029)	(0.125)	(0.126)	(0.153)	(0.148)	(0.048)	(0.045)	(0.058)	(0.053)
ROA	-0.003	-0.005	-0.143***	-0.079***	-0.064	-0.005	-0.055***	-0.049***	-0.050***	-0.039**
	(0.006)	(0.006)	(0.029)	(0.028)	(0.043)	(0.044)	(0.017)	(0.018)	(0.018)	(0.020)
Leverage	0.006	0.005	-0.048	0.040	-0.178***	-0.085**	-0.012	-0.006	-0.017	0.019
	(0.006)	(0.006)	(0.030)	(0.028)	(0.043)	(0.042)	(0.017)	(0.018)	(0.019)	(0.020)
Size	0.010***	0.008**	0.264***	0.274***	0.038**	0.043**	0.032***	0.030***	-0.020***	-0.012*
	(0.003)	(0.004)	(0.016)	(0.015)	(0.017)	(0.019)	(0.005)	(0.006)	(0.006)	(0.007)
Observations	24,961	24,415	18,149	17,441	18,149	17,441	7,865	7,127	11,274	10,522
R-squared	0.566	0.620	0.858	0.881	0.579	0.641	0.582	0.673	0.463	0.560
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Industry x Year FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

Table 5 continued.

Panel C: Mergers and Acquisitions

In column 1, the dependent variable is a dummy variable equal to one if a firm has engaged in mergers and acquisitions (M&A) in a given year, and zero otherwise. In column 2, the dependent variable is a dummy variable equal to one if a firm carried out at least one divestiture in a given year. In columns 3 to 6, the dependent variable is a dummy variable equal to one if a firm has engaged in diversifying M&A deals in a given year. An M&A deal is classified as diversifying if target and acquirer operate in different two-digit SIC codes industries. All models include a constant, and fixed effects as described in the table, whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	M&A	Divestiture	Diversifying M&A			
	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	-0.028	0.023	0.142**	0.171**	0.142**	0.174**
	(0.075)	(0.054)	(0.072)	(0.077)	(0.072)	(0.077)
Cut	-0.017*	-0.007	-0.004		-0.004	
	(0.009)	(0.007)	(0.007)		(0.007)	
% Short-term Investors	0.168***	0.111**	0.008	-0.115***	0.010	-0.115***
	(0.060)	(0.045)	(0.046)	(0.039)	(0.046)	(0.039)
% Institutional Investors	-0.038	-0.040*	0.002	0.090***	0.001	0.090***
	(0.028)	(0.022)	(0.021)	(0.016)	(0.021)	(0.016)
Cut × % Institutional Investors			-0.025	0.019	-0.024	0.019
			(0.029)	(0.032)	(0.029)	(0.032)
# of M&As			0.218***	0.228***	0.217***	0.228***
			(0.020)	(0.019)	(0.020)	(0.019)
ROA	0.055***	0.020***	0.022***	0.013***	0.015**	0.009
	(0.010)	(0.006)	(0.007)	(0.005)	(0.007)	(0.006)
Size	0.025***	0.010***	0.004	0.005**	0.003	0.005**
	(0.005)	(0.004)	(0.004)	(0.002)	(0.004)	(0.002)
Leverage					-0.019**	-0.008
					(0.008)	(0.005)
Observations	21,604	21,604	21,604	21,341	21,560	21,299
R-squared	0.320	0.218	0.541	0.529	0.541	0.529
Firm FE	YES	YES	YES	NO	YES	NO
Year FE	YES	YES	YES	NO	YES	NO
Industry x Year FE	NO	NO	NO	YES	NO	YES

Table 5 continued.

Panel D: Executive Turnover

The dependent variable is executive turnover, which is the number of executives leaving or joining a firm in a given year, divided by the number of executives at the end of the previous year. All models include a constant, and fixed effects as described in the table, whose coefficients are not reported. Industry is a firm's two-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Cut × % Short-term Investors	0.100*	0.104*	0.100*	0.105*
	(0.060)	(0.058)	(0.058)	(0.061)
Cut	0.008	0.012	0.008	0.014
	(0.014)	(0.014)	(0.014)	(0.015)
% Short-term Investors	0.018	0.032	0.032	0.035
	(0.032)	(0.032)	(0.033)	(0.034)
% Institutional Investors	0.019	-0.005	-0.010	-0.009
	(0.016)	(0.016)	(0.016)	(0.017)
Cut × % Institutional Investors	-0.024	-0.031	-0.029	-0.036
	(0.027)	(0.027)	(0.026)	(0.028)
ROA	-0.133***	-0.120***	-0.120***	-0.125***
	(0.024)	(0.022)	(0.022)	(0.023)
Leverage		0.008	0.013	0.011
		(0.013)	(0.014)	(0.015)
Size		-0.004**	-0.003	-0.002
		(0.002)	(0.002)	(0.002)
# of Executives		0.036***	0.036***	0.036***
		(0.002)	(0.002)	(0.002)
Observations	8,201	8,189	8,189	8,134
R-squared	0.039	0.088	0.092	0.125
Industry FE	NO	NO	YES	NO
Year FE	YES	YES	YES	NO
Industry × Year FE	NO	NO	NO	YES

Table 6: Pre-Exiting Trends

The dependent variable is indicated on top of each column. *Cut (t-1)*, *Cut (t-2)*, and *Cut (t-3)* take value equal to one for industries one, two, and three years before the tariff cut, respectively. *Cut (t+1)*, *Cut (t+2)*, and *Cut (t+3)* take value equal to one for industries one, two, and three years after the tariff cut, respectively. All models include a constant and fixed effects as described in the table, whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth	PPE Growth
	(1)	(2)
Cut × % Short-term Investors	0.223*	0.202**
	(0.121)	(0.091)
% Short-term Investors	0.351***	0.471***
	(0.056)	(0.045)
Cut (t+1) × % Short-term Investors	0.059	-0.009
	(0.095)	(0.070)
Cut (t+2) × % Short-term Investors	-0.106	0.044
	(0.080)	(0.073)
Cut (t+3) × % Short-term Investors	0.032	0.109*
	(0.077)	(0.064)
Cut (t-1) × % Short-term Investors	0.021	-0.008
	(0.098)	(0.087)
Cut (t-2) × % Short-term Investors	0.162	0.093
	(0.123)	(0.085)
Cut (t-3) × % Short-term Investors	0.092	-0.043
	(0.106)	(0.074)
% Institutional Investors	-0.086***	-0.096***
	(0.017)	(0.014)
Cut × % Institutional Investors	-0.020	-0.017
	(0.032)	(0.029)
ROA	0.185***	0.117***
	(0.020)	(0.017)
Observations	12,710	12,787
R-squared	0.216	0.213
Industry x Year FE	YES	YES

Table 7: Lagged Short-Term Institutional Ownership

The dependent variable is indicated on top of each column. *% Short-term Investors (t-4)* is the variable *% Short-term Investors* lagged by four years. In columns 1-4, we include the entire sample. In columns 5-8, we include firms that experienced a 50% decrease in the proportion of short-term institutional ownership and all firms that had relatively low institutional ownership at *t-4* (defined as a fraction of short-term investors smaller than 4%). All models include a constant and fixed effects as described in the table, whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Whole Sample				Excluding firms with still large short-term institutional ownership at year t			
	Sales Growth		PPE Growth		Sales Growth		PPE Growth	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cut × % Short-term Investors (t-4)	0.217**	0.190**	0.142***	0.077	0.207	0.206	-0.014	-0.051
	(0.106)	(0.092)	(0.052)	(0.059)	(0.145)	(0.162)	(0.097)	(0.103)
Cut	-0.015		-0.007		-0.012		-0.002	
	(0.010)		(0.006)		(0.011)		(0.008)	
% Short-term Investors (t-4)	-0.070*	0.074**	-0.158***	0.037	-0.169**	-0.022	-0.167***	-0.066**
	(0.042)	(0.037)	(0.029)	(0.023)	(0.069)	(0.060)	(0.051)	(0.033)
% Institutional Investors (t-4)	-0.000	-0.000***	0.000	-0.000	-0.000	0.000	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cut × % Institutional Investors (t-4)	0.000	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROA	0.273***	0.175***	0.122***	0.100***	0.236***	0.160***	0.119***	0.090***
	(0.026)	(0.018)	(0.019)	(0.013)	(0.034)	(0.021)	(0.025)	(0.015)
Observations	15,452	15,106	15,577	15,228	7,434	7,037	7,511	7,107
R-squared	0.241	0.241	0.247	0.171	0.277	0.231	0.290	0.199
Firm FE	YES	NO	YES	NO	YES	NO	YES	NO
Year FE	YES	NO	YES	NO	YES	NO	YES	NO
Industry x Year FE	NO	YES	NO	YES	NO	YES	NO	YES

Table 8: Instrumental Variable Estimates

We instrument *% Short-term Investors* and *Cut × % Short-term Investors* with *Large-cap (2000) × Decimalization*, *Mid-cap (2000) × Decimalization*, *Large-cap (2000) × Decimalization × Cut*, and *Mid-cap (2000) × Decimalization × Cut*. *Decimalization* is a dummy variable equal to one after 2001, the year when fractional pricing was terminated and the minimum tick size for quotes and trades was reduced to pennies, and zero otherwise. Panel A reports the first stage of the IV regression for the two endogenous variables *% Short-term Investors* and *Cut × % Short-term Investors*. Panel B reports the second stage estimates for the dependent variables indicated on top of each column. All models include both a constant and fixed effects as described in the table whose coefficients are not reported. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: First Stage

Dependent Variable	% Short-term Investors			Cut × % Short-term Investors	
	(1)	(2)	(3)	(4)	(5)
Large-cap (2000) × Decimalization	0.012**	0.011**	0.007	-0.026***	-0.023***
	(0.005)	(0.005)	(0.006)	(0.002)	(0.002)
Large-cap (2000) × Decimalization × Cut		0.007	-0.006	0.068***	0.053***
		(0.005)	(0.009)	(0.007)	(0.010)
Mid-cap (2000) × Decimalization	0.035***	0.034***	0.030***	-0.013***	-0.009***
	(0.005)	(0.006)	(0.006)	(0.002)	(0.002)
Mid-cap (2000) × Decimalization × Cut		0.010**	0.014	0.071***	0.060***
		(0.005)	(0.010)	(0.008)	(0.011)
Cut	0.001	-0.000		0.081***	
	(0.001)	(0.001)		(0.002)	
ROA	0.015***	0.015***	0.023***	0.003*	0.004***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Large-cap (2000)			0.047***		0.022***
			(0.004)		(0.002)
Mid-cap (2000)			0.015***		0.008***
			(0.004)		(0.002)
Observations	25,017	25,017	24,779	25,017	24,779
R-squared	0.605	0.605	0.249	0.582	0.529
Year FE	YES	YES	NO	YES	NO
Firm FE	YES	YES	NO	YES	NO
Industry x Year FE	NO	NO	YES	NO	YES

Table 8 continued.

Panel B: Second Stage

Dependent Variable	Sales Growth		PPE Growth	
	(1)	(2)	(3)	(4)
Cut × % Short-term Investors	0.456**	1.645***	0.365**	1.346***
	(0.193)	(0.371)	(0.169)	(0.327)
Cut	-0.040**		-0.024	
	(0.019)		(0.017)	
% Short-term Investors	-0.410	-1.027**	-1.075**	-1.464***
	(0.430)	(0.467)	(0.424)	(0.474)
ROA	0.291***	0.170***	0.144***	0.120***
	(0.024)	(0.019)	(0.015)	(0.015)
Large-cap (2000)		0.033		0.047*
		(0.025)		(0.025)
Mid-cap (2000)		0.034**		0.039**
		(0.017)		(0.017)
Observations	22,232	21,957	22,566	22,284
Cragg-Donald Wald F statistic	49.230	23.231	51.163	23.164
Root MSE	0.301	0.328	0.235	0.277
Year FE	YES	NO	YES	NO
Firm FE	YES	NO	YES	NO
Industry x Year FE	NO	YES	NO	YES

Table 9: Considering Alternative Mechanisms

Panel A: Exporting Firms, Multinational Firms, and Profit Margins

This table reports the baseline regression tests of Table 2 with additional controls for exporting firms (columns 1-2), multinational firms (columns 3-4), and profit margin (columns 5-6). All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Exporting Firms		Multinational Firms		Profit Margins	
	Sales Growth	PPE Growth	Sales Growth	PPE Growth	Sales Growth	PPE Growth
	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.241**	0.284***	0.237**	0.282***	0.257**	0.280***
	(0.101)	(0.065)	(0.102)	(0.065)	(0.102)	(0.064)
% Short-term Investors	0.176***	0.331***	0.180***	0.331***	0.164***	0.335***
	(0.054)	(0.043)	(0.054)	(0.043)	(0.053)	(0.043)
% Institutional Investors	-0.110***	-0.064***	-0.114***	-0.066***	-0.112***	-0.062***
	(0.027)	(0.022)	(0.027)	(0.022)	(0.026)	(0.021)
Cut × % Institutional Investors	-0.043	-0.048**	-0.037	-0.044*	-0.050*	-0.048**
	(0.029)	(0.024)	(0.029)	(0.024)	(0.028)	(0.024)
Exporting Firm	-0.006	-0.006				
	(0.009)	(0.007)				
Cut × Exporting Firm	-0.008	0.001				
	(0.011)	(0.010)				
MNC			0.001**	0.002***		
			(0.001)	(0.001)		
Cut × MNC			-0.000	-0.001		
			(0.001)	(0.001)		
Profit Margin					0.025***	-0.002
					(0.005)	(0.003)
Cut × Profit Margin					0.003	0.004
					(0.007)	(0.003)
ROA	0.256***	0.114***	0.255***	0.114***	0.240***	0.125***
	(0.018)	(0.014)	(0.018)	(0.014)	(0.019)	(0.014)
Observations	21,690	22,020	21,627	21,967	21,682	21,789
R-squared	0.349	0.347	0.349	0.348	0.353	0.354
Firm FE	YES	YES	YES	YES	YES	YES
Industry x Year FE	YES	YES	YES	YES	YES	YES

Table 9 continued.

Panel B: Technological Uniqueness, R&D, and Firm Size

This table reports the baseline regression tests of Table 2 with additional controls for a proxy of the firm's technological uniqueness, computed as the absolute value of the difference between the ratio of fixed assets and number of employees of a firm and the median of the ratio of fixed assets and number of employees for other firms in the industry (columns 1-2), R&D expenditure (columns 3-4), and firm size (columns 5-6), measured as natural logarithm of total assets. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Technological Uniqueness		R&D		Firm Size	
	Sales Growth	PPE Growth	Sales Growth	PPE Growth	Sales Growth	PPE Growth
	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.219**	0.279***	0.233**	0.284***	0.256**	0.288***
	(0.103)	(0.065)	(0.099)	(0.065)	(0.103)	(0.066)
% Short-term Investors	0.177***	0.323***	0.192***	0.325***	0.170***	0.325***
	(0.053)	(0.043)	(0.053)	(0.043)	(0.054)	(0.042)
% Institutional Investors	-0.109***	-0.053**	-0.090***	-0.075***	-0.142***	-0.172***
	(0.027)	(0.022)	(0.026)	(0.022)	(0.027)	(0.023)
Cut × % Institutional Investors	-0.028	-0.044*	-0.048*	-0.043*	-0.057*	-0.034
	(0.030)	(0.024)	(0.028)	(0.024)	(0.031)	(0.024)
Technological Uniqueness	-0.018**	-0.006				
	(0.009)	(0.006)				
Cut × Technological Uniqueness	0.005	-0.028***				
	(0.019)	(0.011)				
R&D			0.294***	-0.149***		
			(0.061)	(0.033)		
Cut × R&D			-0.013	0.040		
			(0.080)	(0.050)		
Size					0.028***	0.081***
					(0.006)	(0.005)
Cut × Size					0.004	-0.000
					(0.003)	(0.003)
ROA	0.257***	0.118***	0.270***	0.106***	0.236***	0.058***
	(0.020)	(0.014)	(0.019)	(0.014)	(0.019)	(0.014)
Observations	21,056	21,425	21,685	22,020	21,690	22,020
R-squared	0.351	0.349	0.353	0.349	0.351	0.367
Firm FE	YES	YES	YES	YES	YES	YES
Industry x Year FE	YES	YES	YES	YES	YES	YES

Table 9 continued.

Panel C: Cash Holdings, Leverage, and Rated Firms

This table reports the baseline regression tests of Table 2 with additional controls for corporate cash holdings (columns 1-2), leverage (columns 3-4), and rated firms (columns 5-6). All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Cash Holding		Leverage		Rated Firms	
	Sales Growth	PPE Growth	Sales Growth	PPE Growth	Sales Growth	PPE Growth
	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.246**	0.273***	0.247**	0.279***	0.254**	0.288***
	(0.104)	(0.066)	(0.103)	(0.064)	(0.101)	(0.065)
% Short-term Investors	0.189***	0.344***	0.177***	0.331***	0.174***	0.333***
	(0.054)	(0.043)	(0.054)	(0.043)	(0.053)	(0.043)
% Institutional Investors	-0.112***	-0.067***	-0.102***	-0.067***	-0.106***	-0.062***
	(0.027)	(0.022)	(0.027)	(0.022)	(0.027)	(0.022)
Cut × % Institutional Investors	-0.050*	-0.048**	-0.047	-0.047**	-0.053*	-0.049**
	(0.029)	(0.024)	(0.029)	(0.023)	(0.029)	(0.024)
Cash	-0.166***	-0.126***				
	(0.029)	(0.022)				
Cut × Cash	-0.001	0.033				
	(0.040)	(0.028)				
Leverage			0.111***	-0.033**		
			(0.020)	(0.016)		
Cut × Leverage			0.021	-0.009		
			(0.024)	(0.020)		
Rated Firm					-0.082***	-0.100***
					(0.020)	(0.018)
Cut × Rated Firm					0.083***	0.042*
					(0.029)	(0.023)
ROA	0.264***	0.120***	0.306***	0.100***	0.255***	0.114***
	(0.019)	(0.014)	(0.022)	(0.015)	(0.018)	(0.014)
Observations	21,685	22,020	21,640	21,972	21,690	22,020
R-squared	0.352	0.350	0.353	0.348	0.350	0.350
Firm FE	YES	YES	YES	YES	YES	YES
Industry x Year FE	YES	YES	YES	YES	YES	YES

Table 9 continued.

Panel D: Family Block Ownership and Corporate Governance

This table reports the baseline regression tests of Table 2 with additional controls for family block ownership (columns 1-2) and corporate governance (columns 3-4), measured as a dummy variable equal to one if a firm's Gompers-Ishii-Metrick G-index is in the top quartile indicating poor corporate governance and zero otherwise. Since we have a snapshot of family block ownership, the direct effect is absorbed by the firm fixed effects. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Family Block Ownership		G-Index	
	Sales Growth	PPE Growth	Sales Growth	PPE Growth
	(1)	(2)	(3)	(4)
Cut × % Short-term Investors	0.241**	0.284***	0.239**	0.278***
	(0.095)	(0.071)	(0.101)	(0.064)
% Short-term Investors	0.177***	0.331***	0.177***	0.333***
	(0.045)	(0.041)	(0.054)	(0.043)
% Institutional Investors	-0.106***	-0.063***	-0.110***	-0.065***
	(0.029)	(0.023)	(0.027)	(0.022)
Cut × % Institutional Investors	-0.054	-0.052*	-0.040	-0.042*
	(0.036)	(0.027)	(0.029)	(0.024)
Cut × Family Block Ownership	-0.088***	-0.034		
	(0.032)	(0.027)		
High G			-0.002	0.009
			(0.013)	(0.012)
Cut × High G			-0.010	-0.019
			(0.013)	(0.012)
ROA	0.256***	0.114***	0.256***	0.114***
	(0.023)	(0.017)	(0.018)	(0.014)
Observations	21,690	22,020	21,690	22,020
R-squared	0.349	0.347	0.349	0.347
Firm FE	YES	YES	YES	YES
Industry x Year FE	YES	YES	YES	YES

Table 9 continued.

Panel E: Dedicated Investors, Investor Activism, and Ownership Concentration

This table reports the baseline regression tests of Table 2 with additional controls for dedicated long-term investors (columns 1-2), investor activism (columns 3-4), and ownership concentration (columns 5-6). All models include a constant and fixed effects as described in the table whose coefficients are not reported. Industry is a firm's four-digit SIC code. Standard errors are clustered at the industry×year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Dedicated Investors		Active Investors		Ownership Concentration	
	Sales Growth	PPE Growth	Sales Growth	PPE Growth	Sales Growth	PPE Growth
	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.184**	0.204***	0.243**	0.285***	0.247**	0.289***
	(0.077)	(0.050)	(0.101)	(0.065)	(0.102)	(0.065)
% Short-term Investors	0.050	0.261***	0.175***	0.330***	0.160***	0.319***
	(0.043)	(0.035)	(0.054)	(0.043)	(0.053)	(0.044)
% Institutional Investors			-0.109***	-0.064***	-0.108***	-0.075***
			(0.027)	(0.022)	(0.027)	(0.022)
Cut × % Institutional Investors			-0.043	-0.048**	-0.072**	-0.033
			(0.029)	(0.024)	(0.033)	(0.027)
% Dedicated Investors	-0.051	-0.069				
	(0.054)	(0.042)				
Cut × % Dedicated Investors	-0.095	-0.038				
	(0.079)	(0.063)				
Investor Activism			-0.009	-0.010		
			(0.032)	(0.019)		
Cut × Investor Activism			-0.077	-0.086*		
			(0.071)	(0.046)		
Ownership Concentration					-0.074***	-0.083***
					(0.024)	(0.019)
Cut × Ownership Concentration					-0.067*	0.040
					(0.035)	(0.028)
ROA	0.256***	0.114***	0.256***	0.114***	0.252***	0.111***
	(0.018)	(0.014)	(0.018)	(0.014)	(0.018)	(0.014)
Observations	21,690	22,020	21,690	22,020	21,690	22,020
R-squared	0.348	0.347	0.349	0.347	0.350	0.349
Firm FE	YES	YES	YES	YES	YES	YES
Industry x Year FE	YES	YES	YES	YES	YES	YES

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