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Abstract

We show that following large permanent negative shocks, firms with more short-term institutional investors suffer smaller drops in sales, investment and employment and have better long-term performance than similar firms affected by the shocks. To do so, these firms increase their R&D and advertising expenses, differentiate their products from those of the competitors, conduct more diversifying acquisitions, and have higher executive turnover in the aftermath of the shocks, suggesting that they put stronger effort in adapting their business to the new competitive environment. Endogeneity of institutional ownership and other selection problems do not appear to drive our findings.

JEL Classification: G3, G23, F1

Keywords: Short-termism, investor horizons, Restructuring, tariff cuts, deregulation

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

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We show that following large permanent negative shocks, firms with more short-term institutional investors suffer smaller drops in sales, investment and employment and have better long-term performance than similar firms affected by the shocks. To do so, these firms increase their R&D and advertising expenses, differentiate their products from those of the competitors, conduct more diversifying acquisitions, and have higher executive turnover in the aftermath of the shocks, suggesting that they put stronger effort in adapting their business 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

Technological shocks, import competition, and shifts in regulatory policies lead with increasing frequency to radical changes in economic environment and major industry shakeouts (Autor, Dorn and Hanson, 2013). Whether firms succumb or thrive depends on the extent to which they restructure and reinvent their business model. Therefore, it is crucial to understand what factors help spur prompt and successful restructuring of firms affected by permanent negative shocks and, at the macroeconomic level, of stagnating economies. Unfortunately, we know little about how firms with different characteristics adjust to these shocks.

This paper aims to make a first step in understanding how a firm's ownership structure affects its response to permanent negative shocks. Existing literature implies that the management of firms with more short-horizon investors fears the consequences of short-term underperformance to a larger extent because these investors are more likely to pressure boards for managerial changes. Short-term investors are also more likely to sell after observing negative short-term results (Bernardo and Welch, 2004).[1] Since managers rather avoid actual interventions, short-horizon investors' threat of selling or intervening may successfully discipline managers even if we do not observe actual interventions or sell offs (Fos and Kahn, 2015).

While the behavior of short-horizon investors is believed to create a handicap for firms when business is as usual (Stein, 1989), we conjecture that the pressure created by the

[1] Cella, Ellul and Giannetti (2013) provide empirical evidence supporting this theoretical argument.

presence of short-horizon investors may allow firms to rapidly adjust in the aftermath of shocks that require major strategy overhauls. This may be the case not only because short-horizon investors exercise pressure on boards (through exit or voice) following shocks, but also because firms that are forced to focus on short-term performance learn to be fast in adjusting their corporate policies. Whether these mechanisms are relevant and whether firms with short-horizon investors are more effective in adapting to radical change than other firms are ultimately empirical questions, which we aim to address in this paper.

To explore how ownership structure affects firms' adjustment to changing economic environments, we study firms' reactions to large and permanent negative shocks. We base most of the 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 (see, for instance, Fresard, 2010, Xu, 2012, and Valta, 2012), to which firms may have to react by reinventing their business model. We test whether firms with disproportionately more short-horizon investors are more successful in adjusting to these shocks and, consequently, achieve better long-term performance than other similarly affected firms.

We find that, following the above-mentioned shocks, firms with disproportionately more short-term investors have smaller drops in the growth of sales and employment in comparison to other (domestic) firms in their industry, which have been similarly affected by the shocks. These effects appear to be associated with more investment and diversifying acquisitions. In particular, firms appear to invest more in R&D and advertising, and differentiate their products from those of competitors to a greater extent, arguably to limit the effects of intensified competition. Firms with more short-term institutional investors also have higher executive turnover following the shocks. 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: they reinvent their business models and choose the industries in which they operate and managerial skills in order to create comparative advantage.

In all of our tests, ownership is predetermined with respect to shocks, making it unlikely that short-horizon investors have selected companies in anticipation of their positive reaction to the shocks. Nevertheless, we perform a number of tests to mitigate concerns about endogeneity problems. First, our results are invariant if we consider stocks that catered to short-term institutional investors well into the past thus reducing the probability that short-term investors selected stocks anticipating firms' responses to the shocks. We also note that this would be particularly unlikely in our context as the identity of short-term investors—albeit not the extent of short-term institutional ownership—is likely to have already changed in the time interval between the measurement of ownership and the occurrence of the shock.

Second, we exploit exogenous variation in short-term institutional ownership due to decimalization (Bessembinder 2003; Fang, Tian and Tice 2014). By changing the minimum tick size and thus increasing liquidity, the decimalization of 2001 favored an exogenous increase in short-term institutional ownership. It is therefore comforting that firms with short-term investors appear to perform better after the shocks also in our instrumental variable estimates. Third, we show that differences in firms' reactions are not driven by omitted firm characteristics potentially correlated with short-term institutional ownership, such as family ownership, size, presence of active investors, cash holdings, leverage, ownership concentration, or differential exit rates. All these tests corroborate the causal interpretation of our findings.

Finally, we extend the analysis to major changes in regulation. Industry deregulation provides a source of exogenous variation in the extent of product market competition (Asker

and Ljungqvist, 2010). Also in this context, we find that, as an industry deregulates and competition increases, firms with a higher proportion of short-horizon investors adjust faster to the new environment achieving higher growth of sales, fixed assets, and employment and performing better than competitors.

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 may perform an important function in the economy.

This paper belongs to a growing literature exploring the effects of institutional ownership on firm performance and corporate policies (e.g., Aghion, Van Reenen and Zingales, 2013). A strand of this literature shows that investor horizon affects corporate policies. For instance, Bushee and Noe (2000) and Bushee (2001) show that short-term investment may be valued more in firms whose shareholders have short horizons. Possibly as a consequence, firms with shorter investor horizons reduce research and development expenditures (Bushee, 1998; Cremers, Pareek and Sautner, 2017). Firms with more short-horizon investors also fare worse in takeovers (Gaspar, Massa and Matos, 2005; Chen, Harford and Li, 2007). Consistent with the above evidence, many managers admit that they are willing to sacrifice projects that are profitable in the long run in order to meet short-run earnings targets (Graham, Harvey and Rajgopal, 2005). By contrast, long-term institutional investors appear to improve corporate governance by limiting over-investment (Harford, Kecskes and Mansi, 2014).

All these papers provide evidence that long-term investors influence managers to pursue corporate policies that enhance firm value during normal times, that is, when the economic environment is static. Theoretically, however, the short-termism of activist

investors could ameliorate managerial incentives and limit extraction of private benefits or managerial preference for a quiet life (e.g., Fos and Kahn, 2015; Strobl and Zeng, 2015; Thakor, 2015). Short-term investors could also trade on long-term information and provide stronger governance through their threat of exit (Admati and Pfleiderer, 2009; Edmans, 2009).

To the best of our knowledge, ours is the first empirical paper to highlight a benefit of short-term investors. We are agnostic on the effect of short-term ownership during normal times or when shocks are temporary (which our empirical strategy is not suitable in identifying). However, we note that our results are fully consistent with existing literature documenting the negative effects of short-term ownership because the benefits we highlight exist conditionally on permanent negative shocks that require restructuring.

Our results are also consistent with the finding of Massa, Wu, Zhang and Zhang (2015) that short-selling spurs long-term investment in R&D. We show that short-term investors are beneficial to firm performance when they spur faster reaction to shocks that dramatically and permanently change the economic environment in which a firm operates. These shocks could also lead to more short-selling interest.

The rest of the paper is organized as follows. Section 1 presents a stylized model providing a conceptual framework for the empirical tests. Section 2 describes the empirical approach for the main experiment based on import tariff cuts. Section 3 describes the data. Section 4 reports the results for the tests based on import tariff cuts. Section 5 extends the analysis to increases in competitive pressure due to deregulation shocks. Section 6 concludes. Variable definitions are in the Appendix.

1. Conceptual Framework

Existing literature suggests several mechanisms through which short-term investors may affect firms' responses to shocks. First, short-term investors are believed to have an advantage in acquiring information, which enables them to take fast reactions following changes in economic environment (Yan and Zhang, 2009; Ke and Petroni, 2004). Even if they had similar information, long-term investors might not be able to sell as fast. A large part of long-term investors are passive investors, who have to follow an index and are therefore unable to sell firms in the index. Furthermore, long-term dedicated investors tend to hold larger positions in a firm. Therefore, they are unable to liquidate their positions fast even if they do not follow an index. As a result of the investors' different reaction time to negative information, firms with short-term investors are more likely to be subject to financial market runs (Cella, Ellul and Giannetti, 2013), while managers of firms with long-term investors are largely unconcerned about selling pressure and large price drops.

Second, firms with short-term investors tend to provide more short-term information (Glaeser, Michels, and Verrecchia, 2017). Thanks also to short-term investors' information collection and trading, these firms may have more informative stock prices. Price informativeness may in turn enable managerial learning and faster reaction to shocks (Bond, Edmans, and Goldstein, 2012).

Finally, as a consequence of investor trading horizons and price informativeness, firms that cater to short-horizon investors may have organizational structures and decision-making processes that make them more prone to weather negative shocks. One may view this paper as a test of this simple organizational behavior story.

In what follows, we show that whether short-term investors lead to suboptimal choices may depend on the state of the world. In particular, we propose a simple framework

to illustrate why a change in competitive environment may make short-term institutional ownership optimal for firms' long-term value maximization.

We assume that short-term institutional investors can demand firms to restructure through either exit or voice.[2] We show that in equilibrium, restructuring may lead to maximization or destruction of the targeted firm's long-term value even if it always leads to a short-term increase in valuation.

Consider a firm, whose management can be of either high or low quality. Only firms with high-quality management are able to implement a different strategy and answer positively to short-term investors' request for restructuring. Because of their compensation or fear of dismissal, the management's payoff is assumed to depend on the firm's short-term value.

Market participants observe only if a firm has been targeted by short-term investors and, subsequently, if it restructures. Market participants do not observe the management type or the state of the world that affects whether restructuring is good or bad for the firm.

The firm's market price at $t = 1$ is the short-term value of the firm. The firm's actual cash flows are revealed only in the long run (at $t = 2$). For this reason, as we show below, it may be optimal in equilibrium for short-term investors, who are expected to sell at $t = 1$, to demand restructuring and benefit from short-term price appreciations even if restructuring leads to long-term value destruction.

Restructuring is good if the economic environment has radically changed, which occurs with probability μ. To capture this, we assume that the value of the firm at $t = 2$ is v_H if the management restructures and the state of the world is favorable to restructuring (with probability μ). However, with probability $1 - \mu$, the state of the world is not favorable to restructuring: If a high-quality manager were to restructure in order to respond to short-term

[2] For simplicity, we assume that short-term investors can request restructuring at no cost.

investors' requests, he can achieve $\underline{v}_M$ at $t = 2$. This is inefficient because a high-quality manager could achieve $\bar{v}_M > \underline{v}_M$ without restructuring. Thus, in this respect, short-term investors lead to short-termism. Restructuring may be desirable with probability μ because $v_H > \bar{v}_M$.

The long-term value of a firm with low-quality management is always v_L, because low-quality management is assumed to be unable to restructure. We assume that a fraction p of firms has high-quality management. While market participants do not observe the managers' types or the state of the world, managers and short-term investors have perfect information on the managers' type and the state of the world when they restructure. Short-term investors learn the manager type after purchasing stocks in a firm.

Under these assumptions, the model has two ingredients: As in Stein (1989), managers may choose a short-term strategy (that is, restructuring), which is suboptimal for the firm in order to signal their type. Differently from Stein (1989), however, we allow restructuring to be optimal for the firm with some probability.

To see why short-termism and optimal short-term strategies may coexist, consider first a firm that is not targeted by short-term investors and that does not restructure. Its market value is:

$$p\bar{v}_M + (1 - p)v_L.$$

The above expression captures market participants' beliefs that the firm has high-quality management with probability p.

Consider next a firm that is targeted by short-term investors. By restructuring, the manager of the firm can signal its high-quality type. In addition, the market prices the fact that restructuring may be optimal for the firm with probability μ. Thus, the short-term market value of a firm that is targeted by short-term investors and that restructures is:

$$\mu v_H + (1 - \mu)\underline{v}_M.$$

Note that in equilibrium, market participants would believe that the manager is of low quality and the firm would be valued v_L if it were targeted by short-term investors and the manager did not restructure. This makes restructuring for a targeted firm with high-quality management a dominant strategy.

It is optimal for short-term investors to demand restructuring in firms with high-quality managers independently from the state of the world, as long as they can profit from purchasing a firm's stocks before the market can learn that restructuring will happen and selling the stocks at $t = 1$:

$$p\bar{v}_M + (1-p)v_L < \mu v_H + (1-\mu)\underline{v}_M.$$

Thus, if v_L and p are sufficiently small, short-term investors will have strong incentives to demand firms with high-quality management to restructure because they may benefit from large short-term appreciations even though restructuring is inefficient (as is the case when v_H and μ are small). One may wonder why restructuring requires the presence of short-term investors. Even a high-quality manager would not voluntarily restructure without short-term investors if his private cost of restructuring is sufficiently large. This is the case if

$$p\bar{v}_M + (1-p)v_L > \mu v_H + (1-\mu)\underline{v}_M - K > v_L,$$

where K is the manager's private cost of restructuring. The second inequality of the above expression captures that the short-term value of any firm that is targeted by short-term investors and does not restructure is v_L, because the market believes the manager to be of low quality. Put differently, the presence of short-term investors decreases the payoff from not restructuring. Thus, an equilibrium in which good managers always respond to short-term investors by restructuring exists under the assumption that restructuring is the only way for a manager and short-term investors to signal the firm's quality to the market.

Ex ante, restructuring is inefficient from a social point of view if the increase in firm value obtained in the state of the world in which restructuring is desirable (μ) is smaller than the value destroyed in the state of the world in which restructuring is deleterious $(1-\mu)$:

$$(1-\mu)\left(\bar{v}_M - \underline{v}_M\right) > \mu(v_H - \bar{v}_M).$$

This is less likely the case when v_H and/or μ are large. Put differently, shocks to the state of the world increasing v_H or μ make short-term institutional ownership positively related to performance. This is the effect that we aim to capture in our empirical tests.

Our contribution lies in identifying empirically situations in which short-term investors may lead firms to better choices and in evaluating the empirical relevance of this new channel. In terms of our model, this implies that we attempt to capture situations in which μ and v_H are large and explore empirically whether short-term investors produce any benefits.

2. Methodology

2.1 Reduction of Import Tariffs

Import competition from foreign firms is a major source of disruption for domestic manufacturing firms. For instance, the surge in China's exports over the last two decades is considered to be responsible for as much as 25% of the aggregate decline of US manufacturing employment (Autor, Dorn and Hanson, 2013).

By changing their strategies, differentiating their products, and innovating, domestic firms may weather competition from foreign firms. Put differently, reacting to foreign competition may require strategic changes, and firms, which are more inclined or faster in restructuring, are expected to perform better.

We use large reductions of import tariff rates as events that are not under direct controls of domestic firms and that trigger a sudden increase in competitive pressure from

foreign rivals by lowering barriers to trade. Because goods and services supplied by foreign rivals become relatively cheaper on domestic markets, large reductions in import tariff rates represent negative shocks triggering a sudden increase in the competitive pressure brought by foreign rivals. These shocks have been widely used in the literature to capture large exogenous changes in competition (e.g. Fresard, 2010; Xu, 2012; Valta, 2012). We explore whether firms in an industry react differently to these shocks depending on their ownership structure.

As is common in the literature (Feenstra, 1996), 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. 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.

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.[3] Figure 1 shows the distributions of the large tariff cuts in our sample. While large tariff cuts are relatively more frequent in the earlier part of the sample, there are a considerable number of events also in the last part of 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.

These large tariff cuts appear to have considerable negative effects on the effected industries: In our sample, during the five years after the large tariff cuts, the sales of the median firm in the affected industry drop by 15% per year in comparison to the industry average and to firms in unaffected industries. Similarly, the employment of the median firm

[3] Fresard (2010), Xu (2012) and Valta (2012) use similarly defined large tariff cuts to explore the effects of increases in competition on cash-holdings, capital structure and cost of capital.

in the industry drops by nearly 20% per year. Arguably, as a consequence, nearly 1% of the affected firms are delisted, bankrupt or acquired.

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 time in advance. One may wonder whether some firms may have already taken steps to adapt to the new competitive environment before the year in which we observe the large tariff cuts. In Subsection 4.4, we find no evidence of differential behavior the year 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, Jensen, Redding and Schott, 2012). This may lead firms to wait for the actual entry of competitors. This conjecture is consistent with the findings of Bloom, Draca and Van Reenen (2016) showing that firms' innovation activities respond to actual import penetration. Therefore, our proxies based on tariffs levied on actual imports are well suited to capture the increase in competitive environment to which firms may respond differentially depending on their characteristics.

2.2 Empirical Framework

We test how *ex ante* differences in short-term institutional ownership lead to differential responses of domestic producers to an exogenous increase in competition triggered by tariff reductions. Our tests share the spirit of the difference-in-difference methodology, but the treatment is a continuous measure of short-term institutional ownership.

We use the following model to test how firms with different proportions of short-term investors at year $t-1$ react following a tariff cut at year t:

$$g_{f,i,t+1} =$$

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

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 $t-1$ ($short\ term\ IO_{f,i,t-1}$).

Depending on the specifications, the matrix of controls, $\boldsymbol{X_{f,i,t}}$, may include firm and year fixed effects, interactions of industry and year fixed effects, institutional ownership, and an interaction term between institutional ownership and $cut_{i,t}$. The latter interaction term allows for a differential reaction of firms with different levels of institutional ownership to the shock.

Model (1) explores firms' initial reactions to negative shocks depending on the level of short-term institutional ownership. It is also important to know what are the long-term effects of these reactions on firm performance because, as highlighted in existing literature (e.g., Graham, Harvey and Rajgopal, 2005), short-term growth could be achieved at the expenses of long-term performance. To explore this, we estimate the following model:

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

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 for five years following the first tariff rate cut in industry i.[4] By contrast, the dummy $cut_{i,t}$ takes value one only during the year of the tariff rate cut.

[4] Results are invariant if we increase the number of years we consider in the $post\ cut$ dummy.

We use Model (1) to explore firms' reactions to shocks and changes in short-term performance measures, such as growth of sales and employment, and investment, whereas we use Model (2) to explore firm long-term performance, as captured by the market to book ratio and profitability.

A potential concern with our empirical framework is that tariff cuts affect industries with different dynamics. In our context, however, endogeneity problems arising from potential industry-level omitted factors are mitigated by the fact that we consider heterogeneity in performance of firms *within* the same industry. The control sample also includes firms with different investor horizons that are not subject to shocks. Our empirical approach thus allows us to identify the causal impact of short-term institutional investors on firm performance in the aftermath of large negative shocks, as long as short-term institutional investors are not particularly good at selecting firms that they expect to perform better in comparison to other firms following negative shocks.

This identification assumption is unlikely to be too restrictive for several reasons. First, we use differences in institutional ownership that are predetermined before the tariff cut. Second, for the identification assumption to be violated, it should be that short-term investors are better at selecting firms subject to negative shocks than firms under normal conditions, because otherwise the direct effect of the percentage of short-term ownership would capture (and control for) the investors' ability to select better companies.

Nevertheless, in Subsection 4.4, we provide evidence that our results are invariant when we exploit exogenous variation in short-term institutional ownership generated by the decimalization of tick size. In addition, we provide direct evidence on the validity of our identification assumption in a number of robustness tests.

3. Sample and Data

3.1 Sample Construction and Data Sources

We construct our sample as follows. We begin with all publicly traded U.S. firms in COMPUSTAT and CRSP. We then merge this dataset with information on firm level institutional ownership, available from Thomson Reuters 13F files. The latter are available from 1981. Finally, we 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).[5] Since we collect information on tariff rate cuts up to 2011, our final sample period is 1981-2011. Other data sources are described as we introduce them in the analysis.

Panel A of Table 1 summarizes the main variables. To capture firms' initial reactions to the increase in competitive pressure, we focus on changes in firm performance. In particular, we consider firms' sales growth as well as growth rate of gross property, plant, and equipment (PPE) and employees in the year following a large tariff rate cut. [6]

Besides considering the short-term reaction to competitive shocks, we also investigate the joint effect of competitive pressure and ownership structure on long-term performance, which we capture using a firm's Tobin's Q and ROA. Tobin's Q is computed as the sum of the market value of equity and total liabilities, scaled by total assets. The low level of the ROA reflects the weak performance of manufacturing industries during our sample period.

Finally, we explore a number of mechanisms through which some firms may achieve better long-term and short-term performance than their competitors. To capture investment decisions, we use mergers and acquisitions activities (M&As), which we obtain from SDC Platinum. Upgrading product quality, differentiating from low-wage countries exports, and

[5] Typically, empirical studies exclude financial firms (6000-6999) and utilities (4900-4949). Our sample in the tariff cuts tests excludes any service industries. The sample in which we explore deregulation shocks relies on service industries and includes utilities.
[6] All the growth rates are winsorized at ± 1.

increasing the brand value of the product are often indicated as the best ways to ease the competitive pressure of imports (Leamer, 2007). To capture firms' efforts in these directions, we consider firms' changes in R&D and advertising expenses.

We also attempt to directly capture the extent to which firms are successful at differentiating their products from competitors. Ideally, we would like to compare a firm's product with that of the foreign competitors benefiting from the tariff rate cut. This is difficult, however, because firms in different countries disclose different product information in their reports. Instead, we compare how a firm's product differs from that of other U.S. listed companies using data from Hoberg and Phillips (2015).

Hoberg and Phillips (2015) conduct textual analysis on the product description sections of form 10-K (Item 1 or Item 1A), which firms file annually with the Securities and Exchange Commission (SEC). For each year and each pair of firms, they compute a measure of product similarity by parsing the product descriptions of the firms' 10-Ks. This measure is based on the relative number of words that two firms share in their product description, and ranges between 0% and 100%. The classification covers the period 1996-2011.

Following Hoberg and Phillips (2010 and 2015), two firms are characterized to have less differentiated products and hence to be closer competitors if they have greater overlap in the number of words used to describe their product. For our purposes, we compute the average product overlap of a firm with that of all other listed companies in our sample.

Finally, using EXECUCOMP we explore whether firms with more short-term investors are more likely to adapt to changing market conditions by turning over their executive team.

3.2 Measuring Investor Horizon

For our tests, it is crucial to measure differences in firm ownership structure and investor horizon. An investor's horizon is generally considered an exogenous characteristics of the investor's trading style, which does not change (or changes slowly) over time. Investors' trading horizons are revealed through time 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 in a firm, we use two proxies for investor horizon commonly used in the literature. Our main proxy for institutional investor horizon—*% Short-term Investors*—exploits Bushee's classification of 13F investors (see 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 stable ownership to firms. The extent of short-term institutional ownership of a firm, *% Short-term Investors*, is then defined as the proportion of institutional investors' stocks 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. This measure of portfolio turnover relies on the minimum of sales and purchases and is not expected to depend on changes in asset under management (Wermers, 2000). Next, to obtain a firm's yearly measure of short-term institutional ownership, we average each investor portfolio turnover over the year and take a weighted

average of the portfolio turnover of institutional investors in a firm, using as weight the proportion of institutional investors' shares in the firm held by investor j at the end of year t.

Importantly, the particular short-term investors holding stocks in a firm are likely to change quickly. However, the extent to which a firm attracts short-term investors is relatively 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.

Panel B of Table 1 shows some salient characteristics of sample firms with different levels of 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.

4. Main Results

4.1 Reactions to Negative Shocks

Table 2 explores the effect of the large tariff cuts on firms' sales, PPE, and employment growth with the objective of shedding light on the timing of firm reactions. Columns 1, 4, and 7 show that on average, sale growth, PPE growth, and employment growth drop in the five years following the tariff cuts (as captured by the $post\ cut$ dummy), confirming that large tariff cuts represent large negative shocks. Table 2 also explores how differences in institutional ownership, and short-term ownership in particular, affect the dynamics of the response to large tariff cuts. To do so, we distinguish between immediate

responses in the year following the tariff cut (as captured by the dummy cut) and more long-term changes over the subsequent five years (as captured by the dummy $post\ cut(t-1)$). It appears that the largest and most consistent differences in reactions across firms with different proportions of short-term investors are in the year immediately following the tariff cuts, when across specifications the interaction term between the dummy cut and the proxy for short-term institutional ownership is highly statistically significant and larger than the interaction between $post\ cut(t-1)$ and the same proxies for short term institutional ownership.[7]

For this reason, Table 3 explores the initial reactions to tariff cuts of firms with different ownership structure using Model (1), described in Subsection 2.2, considering different sets of controls and fixed effects. In Panel A, we explore the change in sales. Sales drop on average after large tariff rates cuts. However, the sales of firms with an *ex ante* larger proportion of short-term investors drop to a lower extent than those of other domestic listed companies in the same industry.

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. Furthermore, this result continues to hold when we include firm fixed effects or interactions of industry and year fixed effects indicating that industry specific shocks cannot drive our finding.

Our finding is not only statistically, but also economically significant. The coefficient estimate in column 4 of Table 3 implies that following a large tariff cut, a firm with one

[7] The results in Table 2 also imply that firms with more long-term investors do not catch up in the following years as the interaction between the proxies for short-term institutional ownership and $post\ cut(t-1)$ tend to have the same sign as the interactions of the proxies for short-term institutional ownership with cut.

standard deviation larger proportion of short-term institutional ownership has a drop of sales that is nearly 4% smaller than that of an otherwise similar firm. The effect is even larger in column 7 where we recognize that short-horizon investors are heterogeneous and 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 drop in sales almost 10% smaller than that of an otherwise similar firm following a large tariff cut.

Panels B and C of Table 3 reveal that, following import tariff cuts, firms with more short-term institutional investors have higher growth rates of employment and gross PPE than other firms affected by the same negative shock. Put differently, firms with disproportionately more short-term investors seem to downsize to a lower extent. For instance, in column 4 of Panel B, a one-standard-deviation change in the percentage of short-term institutional ownership corresponds to an over 4% smaller drop in employment following a large tariff cut.

Some of the control variables provide interesting insights. Institutional ownership is negatively related to sales, PPE, and employment growth on average and to an even greater extent, after the tariff cuts. This is consistent with the findings of Harford, Kecskes and Mansi (2014) that long-term institutional investors benefit firms by decreasing over-investment problems. 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 (2014) argue, the empirical evidence we provide thereafter implies that lower investment hamper firms' long-term performance following negative shocks.

4.2 Long-Term Effects

Existing literature highlights that managers subject to pressure from short-term investors take actions that improve firm performance in the short run at the cost of long-term performance (e.g., Graham, Harvey, and Rajgopal, 2005). One may wonder whether firms do so also in response to negative shocks that increase competition. In this section, we address this question by exploring the long-term effects of short-term institutional ownership for firms in industries affected by large tariff cuts using Model (2), described in Subsection 2.2.

Panel A of Table 4 shows that firms with more short-term institutional ownership still have higher valuations five years after the tariff cut. Five years after the tariff cut, these firms also continue to have higher profitability (Panel B). The effects are also economically sizable. For instance, column 3 of Panels A and B indicates that a one-standard-deviation increase in short-term institutional ownership translates into 6.3% higher Tobin's Q and 1.4% higher ROA during the five years after a large tariff cut. The results are invariant whether we include firm and year fixed effects or interactions of industry and year fixed effects and indicate that the higher growth in sales, PPE, and employment has long-term benefits for shareholders.

4.3 Mechanisms

In this subsection, we explore how firms with more short-term institutional ownership manage to contract to a lower extent and to achieve better long-term performance following large tariff cuts. We explore differences in a host of corporate policies.

Panel A of Table 5 shows that consistent with an attempt of easing competition, firms with more short-term institutional ownership invest in R&D and advertising more than other firms following tariff cuts. Panel B reveals that firms with more short-term institutional ownership do not participate in M&As (column 1) or restructure through divestitures (column

2) more than other firms. Instead, they engage in diversifying acquisitions (columns 3-6) to a greater extent than other firms. We measure diversifying acquisitions as acquisitions of firms in a different three-digit SIC code from the one of the firm. The fact that firms with more short-term investors are more likely to make diversifying acquisitions following a large tariff cut suggests that these firms attempt to ease import competition by accessing new markets and reinventing their business model. These findings are consistent with empirical studies suggesting that firms choose managerial talent and the industries in which they operate to create comparative advantage (see Maksimovic and Phillips (2013) for a review) and highlight a situation in which corporate diversification is beneficial to shareholder value.

In Panel C, we consider how firms' reactions to shocks affect the similarity of their product to that of other firms. Since product similarity is defined as a correlation in product description between a firm and all other COMPUSTAT firms during a year, we allow for time correlation in the dependent variable. For this reason, we double-cluster standard errors at both the firm and time level. We find that the overlap between the product description of firms with more short-term institutional investors and that of other U.S. listed companies drops, indicating that firms with short-horizon investors are successful at differentiating their product.[8] Arguably, this can be viewed as a consequence of the diversifying acquisitions and the investment in R&D and advertising.

Firms with more short-horizon investors may also attempt to adjust to market conditions by turning over the executive team.[9] In Panel D, executive turnover increases to a larger extent in firms with more short-horizon investors in the aftermath of tariff cuts, (Panel D), consistent with these firms' greater efforts in adapting to changes in the competitive environment.

[8] Since we are able to compute changes in differentiated products only from 1997, our sample here is 1997-2011. For lack of power, also due to the fact that large tariff cuts are more frequent in the earlier part of the sample (Figure 1), we are unable to include the interaction between institutional ownership and the dummy cut.
[9] Since EXECUCOMP provides information on the executive team only for S&P1500 firms, the sample is greatly reduced in these tests. For this reason, we include a smaller set of fixed effects.

4.4 Robustness

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

4.4.1 Preexisting Differences in Firm Performance

First, 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 negative shock. By controlling for the direct effect of short-term institutional ownership throughout the analysis, any differences in behavior and performance between firms with different extent of short-term institutional ownership are held constant. Therefore, to invalidate our interpretation of the empirical evidence, any alternative explanation of our findings would have to explain why firms with different level of institutional ownership behave differently especially after the tariff cut.

To test whether firms with different short-term institutional ownership in industries affected by the tariff cut already behaved differently before the shock, we perform a placebo test. We lag the tariff cut dummy by one year and test whether firms with more short-horizon investors in industries that will eventually be affected by the tariff cut are already growing faster. In Panel A of Table 6, we find no evidence that this is the case, indicating that the timing of the change fully supports the causal interpretation of the empirical evidence.

4.4.2 Do Short-term Investors Select Better Firms?

While the direct effect of short-term institutional ownership controls 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 and negative shocks. In this case, reverse causality would undermine our interpretation of the empirical evidence.

To address this concern, we perform several tests. First, in Panel B of Table 6, we lag the ownership variables by four years. While firms with high short-term institutional ownership always tend to attract short-term investors, it is unlikely that tariff cuts, and the firms' ability to cope with competitive pressure, could be anticipated so far in advance. This is particularly unlikely in our context because the identity of the short-term investors presumably changed during a five-year period even though the extent to which different firms attract short-term investors did not. For this reason, our estimates should not be biased by selection problems when we use four-year lags. It is therefore reassuring that we continue to find 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.

In unreported tests, we find no evidence that short-term ownership in firms that have more short-term investors at the time of tariff cuts increased in the years preceding the shock. This also confirms that our findings are not due to reverse causality.

Second, we exploit an arguably exogenous increase in short-term institutional ownership. 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 (Bessembinder, 2003; Fang, Tian and Tice, 2014). Since short-term investors are more inclined to invest in liquid stocks, in which they can more easily turnover their positions, we surmise that price decimalization increased short-term institutional ownership to a larger extent in small stocks, which had relatively larger trading costs before the decimalization.

Therefore, we construct instruments exploiting that the decimalization shock may have increased short-term institutional ownership to a larger extent in relatively smaller stocks. We start by identifying large and mid-capitalization companies. To do so, we sort firms in three terciles based on their stock market capitalization in 2000, the year before-

decimalization, and we define as large- (mid-) capitalization the stocks in the top (mid) tercile. In Panel A of Table 7, the dummy *Decimalization* is absorbed by the time effects. The coefficients estimates show that decimalization increased short-term institutional ownership to a lower extent in large-capitalization stocks than in the omitted category, small stocks (column 1). Short-term institutional ownership also increases more in small stocks than in mid-capitalization stocks.

We exploit these findings to construct instrumental variables. Since we need to instrument both *% Short-term Investors* and *cut* × *% 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 7 show that our results are unchanged when we exploit exogenous variation in short-term institutional ownership confirming that reverse causality is unlikely to drive our findings.

Taken together, Tables 6 and 7 indicate that there is no evidence that short-term institutional owners select firms that are expected to perform better following large tariff cuts.

4.4.3 Firm Exit

Selection problems could also arise for another, more subtle, reason if firms with more short-horizon investors were more likely to exit the dataset because of bankruptcy, 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 negative shocks.

To evaluate this alternative explanation, we compare the rate of exit either due to bankruptcy and delisting (death) or including also acquisitions (exit) between firms with high and low level of short-term investors.[10] The death (exit) rate of firms with a proportion of short-horizon investors above the median is 0.4 (0.1) percent; the corresponding death and

[10] Specifically, following Bhattacharya et al. (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).

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 short-horizon investors, suggesting that any selections problems should make our results weaker.

This conclusion is also apparent from the multivariate analysis, in which we test whether the probability of exit of a firm depends on the proportion of short-horizon investors after negative shocks. Table 8 reports the results. There is no evidence that following negative shocks a higher proportion of short-horizon investors increases the probability of exit, whether we consider or not exits due to acquisitions. This implies that changes in sample composition cannot drive our findings.

4.4.4 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 9 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, confirming that the pressure exercised by short-term investors is beneficial and facilitates restructuring after large permanent negative shocks.

4.4.5 Omitted Factors

Endogeneity problems may also arise because firms with higher short-term institutional ownership have unobserved (or uncontrolled) characteristics that drive their differential response 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. Firms' ability to gain higher sales growth following an increase in competition may depend on cash availability (Fresard, 2010) or on lower leverage. Firms with high cash and/or low leverage may have more resources to increase investment. These factors, rather than a differential reaction due to the presence of short-term investors, may increase the firms' ability to invest and to differentiate their products. These factors may also bias our findings if firms with more short-horizon investors also have more cash or lower leverage. To consider this possibility, we control for a firm's cash and include an interaction between the firm's cash and the dummy cut. Panel A of Table 10 reveals that our estimates remain invariant. Results are equally invariant if we control for leverage and include an interaction between the firm's leverage and the dummy cut. These tests indicate that these alternative channels do not drive our findings.

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 larger firms, which are in turn faster to adjust to different economic environments. Panel B of Table 10 dispels this concern. Another possibility is that 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

[11] When studying family and individual block ownership, it is common to rely on a cross-section (e.g., Holderness, 2007), as ownership and family ownership in particular are believed to vary little over time (McConnell and Servaes, 1990).

firms react differently to shocks. In Panel C of Table 10, we find no evidence that this is the case.

Finally, in Panel D, 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. Being unable to sell shares of the firms that are part of the index they follow, passive investors could be less effective at exerting influence on the firms they own. By contrast, dedicated investors may be able to pressure the firms they own to the same extent as short-term investors. We explore this possibility in columns 1 to 3. We find no evidence that dedicated investors yield the same benefits as short-horizon investors.

We also consider that 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 4 to 6, our results are unaffected if we include an interaction of the Herfindahl index of institutional ownership with the dummy cut, indicating that our findings are not driven by the concentration of institutional ownership.

5. An Out-of-Sample Test using Deregulations

Our maintained hypothesis implies that firms with more short-horizon investors are faster and more successful in adjusting to any shocks that dramatically affect their economic environment. So far, we have considered how firms with different proportions of short-term investors react to large import tariff rate cuts. To assess the generality of our conclusions, we explore how firms react to significant deregulatory shocks.

Industry deregulations significantly increased competition in the affected industries. Asker and Ljungqvist (2010) use such a shock in their investigation of relationships between

investment banks and their clients and provide a detailed description of the events. Examples include the partial deregulation of the bus and trucking industries in the 1982 Bus Regulatory Reform Act, the 1984 Cable Television Deregulation Act, and the 1992 Energy Policy Act, which introduced wholesale competition in electrical power. All the deregulation events occurred between 1977 and 1996. Since data on institutional ownership are available from 1981, we lose events that occurred prior to that year.

Importantly for our identification, differently from the tariff rate cuts, which concern manufacturing industries, these shocks affected 24 four-digit-SIC code service industries. We use as control other firms in the same three-digit SIC industries as the deregulated firms, but with different four-digit SIC codes. Deregulation shocks therefore allow us to perform an out-of-sample test of the role of short-term ownership in favoring industry restructuring following changes in the economic environment.

We estimate a variation of Model (1) in which the dummy cut is replaced by the dummy *Deregulation*, which takes value one in the year of deregulation. Table 11 provides clear evidence that also following dramatic changes in economic environment due to deregulations, firms that happened to have more short-horizon investors before deregulation have higher sales and employment growth (columns 1 to 4). For instance, a one-standard-deviation increase in the proportion of short-term ownerships leads to 11 percentage points higher sales growth in the year following the deregulation. Consistently with our earlier findings these firms also invest more in fixed assets (columns 5 and 6). Arguably as a consequence, their valuations are higher than for other firms affected by the deregulations (column 7).

Overall, these results confirm that firms with more short-term institutional ownership adapt more efficiently and promptly to large shocks that permanently change their economic environment.

6. 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 has been shown to lead to long-term underperformance (e.g., Harford, Kecskes and Mansi, 2014). We show that these results are reversed in the aftermath of permanent negative shocks that alter a firm's economic environment and require changes in firm strategy.

Firms with more short-horizon investors appear to make more significant efforts to adapt to the new business environment. By changing the executive team, performing diversifying acquisitions, and investing more especially in R&D and advertising, these firms appear to succeed in differentiating their product from that of the competitors and in entering 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 permanent negative shocks to which the benefits of short-term ownership are associated may not have been frequent, but their incidence is increasing with the process of globalization and the introduction of more radical innovations. More crucially, permanent negative shocks have a large downside for firms and economies. Firms that fail to restructure 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.

Appendix

Variables	Definition
% Institutional Investors	The fraction of shares held by institutional investors at year $t-1$. Source: 13F.
% Short-term Investors	The fraction of institutional investors' shares held by transient investors at year $t-1$. Transient investors are identified following Bushee's (1998 and 2001) classification of 13F investors. Source: 13F and Bushee's Website.
% Dedicated Investors	The fraction of institutional investors' shares held by dedicated investors at year $t-1$. Dedicated investors are identified following Bushee's (1998 and 2001) classification of 13F investors. Source: 13F and Bushee's Website.
Advertising Growth	The difference between the natural logarithm of a firm's advertising expenditure in year t and year $t-1$. Winsorized so that the maximum is no more than 1 and minimum no less than -1. Source: COMPUSTAT.
Cash	Cash and short-term investments divided by total assets. Winsorized at 1%. Source: COMPUSTAT.
Churn	The weighted average of the portfolio turnover of institutional investors in a firm during the year preceding the tariff rate cut, where the weight is the fraction of shares held by investor j at the end of year $t-1$. Each institutional investor's quarterly portfolio turnover is calculated 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. We then average each investor portfolio turnover over the year. Source: 13F.
Cut	A dummy variable equal to one if a firm belongs to an industry that experiences a large tariff cut during the previous year, and zero otherwise. Sources: Feenstra (1996), Feenstra, Romalis, and Schott (2002), and Schott (2010).
Death	A dummy variable equal to one if in a given year a firm is liquidated (CRSP delisting codes 400-490), is dropped (500-591), or expires (600-610), and zero otherwise. Source: CRSP.
Decimalization	A dummy variable equal to one if after 2001, when stock exchanges terminated the system of fractional pricing and reduced the minimum tick size for quotes and trades to pennies, and zero otherwise.
Deregulation	A dummy variable equal to one if a firm belongs to an industry that experiences deregulations during the previous year, and zero otherwise. Source: Asker and Ljungqvist (2010).
Diversifying M&A	A dummy variable equal to one if a firm acquires a target whose primary 3-digit SIC code differs from its own, and zero otherwise. Source: SDC.
Divestiture	A dummy variable equal to one if a firm partially or fully disposes of a business unit losing control of it. Source: SDC.
Employee Growth	The difference between the natural logarithm of a firm's number of employees in year t and year $t-1$. Winsorized so that the maximum is no more than 1 and minimum no less than -1. Source: COMPUSTAT.
Executive Turnover	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. Source: EXECUCOMP.
Exit	A dummy variable equal to one if in a given year a firm experiences a merger (CRSP delisting codes 200-290), an exchange (300-390), a liquidation (CRSP delisting codes 400-490), is dropped (500-591), or expires (600-610), and zero otherwise. Source: CRSP.
Family Block Ownership	The proportion of share blocks held by families, as of 2010. Source: Orbis.

Large-cap (2000)	A dummy variable equal to one if a firm's market capitalization in 2000 falls into the top tercile of the sample, and zero otherwise.
Leverage	Total liabilities divided by total assets. Winsorized at 1%. Source: COMPUSTAT.
M&A	A dummy variable equal to one if a firm makes a merger and acquisition deal in a given year and zero otherwise. Source: SDC.
Mid-cap (2000)	A dummy variable equal to one if a firm's market capitalization in 2000 falls into the middle tercile of the sample, and zero otherwise.
Ownership Concentration	The Herfindahl index of the fraction of shares held by institutional investors at year $t-1$. Source: 13F.
PPE Growth	The difference between the natural logarithm of a firm's gross property, plant, and equipment in year t and year $t-1$. Winsorized so that the maximum is no more than 1 and minimum no less than -1. Source: COMPUSTAT.
Product Differentiation	The difference between the natural logarithm of product overlap score in year t and year $t-1$. A firm's product overlap score is computed by averaging the Hoberg and Phillips' product overlap score of a given firm with all the other firms in COMPUSTAT. Source: Hoberg and Phillips (2015).
Post Cut	A dummy variable equal to one for five years following a large tariff rate cut in a given industry, and zero otherwise. Sources: Feenstra (1996), Feenstra, Romalis, and Schott (2002), and Schott (2010).
R&D Growth	The difference between the natural logarithm of a firm's R&D expenditure in year t and year $t-1$. Winsorized so that the maximum is no more than 1 and minimum no less than -1. Source: COMPUSTAT.
ROA	Return on assets, calculated as net earnings divided by total assets. Winsorized at 1%. Source: COMPUSTAT.
Tobin's Q	The sum of market value of equity and total liabilities divided by total assets. Winsorized at 5%. Source: COMPUSTAT.

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Figure 1: Distribution of Large Import Tariff Cuts

Figure 1 shows the number of four-digit SIC industries affected by a tariff cut in a given year.

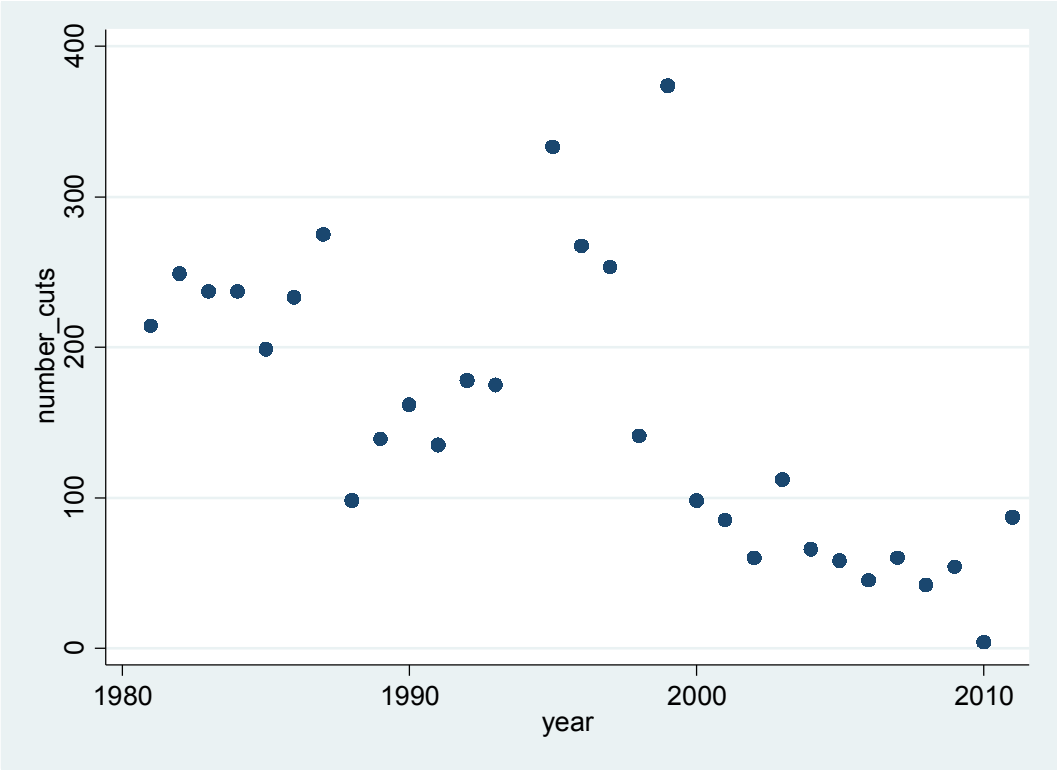

Table 1: Summary Statistics

Panel A reports summary statistics for our sample. In Panel B, we compare firm characteristics associated with high and low ownership of short-term investors based on the sample median of *% Short-term Investors*. The *p*-value of the T-test for the difference in sample mean is reported in column (5).

Panel A: Firm Characteristics

	# obs.	Mean	STD	25th	Median	75th
Sales Growth	28,380	0.214	0.439	-0.014	0.119	0.376
Employee Growth	28,380	0.184	0.420	-0.035	0.056	0.262
PPE Growth	28,380	0.214	0.376	0.025	0.097	0.272
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
Family Block Ownership	28,380	0.074	0.157	0.000	0.000	0.068
% Dedicated Investors	28,380	0.050	0.067	0.000	0.021	0.078
Ownership Concentration	28,380	0.207	0.253	0.047	0.100	0.259
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
Employees (thousands)	27,212	8.549	33.391	0.133	0.582	3.463
Leverage	28,079	0.481	0.433	0.235	0.419	0.594

Panel B: Univariate Comparison

	Low Level of Short-term Investors		High Level of Short-term Investors		*p*-value
	# obs.	Mean	# obs.	Mean	
	(1)	(2)	(3)	(4)	(5)
% Short-term Investors	12,766	0.025	12,765	0.175	0.000
Churn	12,766	0.013	12,765	0.051	0.000
% Institutional Investors	12,766	0.197	12,765	0.573	0.000
Total Assets ($MM)	12,652	3,852	12,701	3,614	0.297
Cash	12,647	0.221	12,699	0.264	0.000
Employees (thousands)	12,167	9.111	12,443	9.574	0.299
Leverage	12,637	0.470	12,660	0.448	0.000

Table 2: Direct Effect of Tariff Cuts

This table explores the direct effect of tariff cuts as well as the dynamic effects across firms with different institutional ownership. The dependent variable is sales growth in columns 1-3, employment growth in columns 4-6, and PPE growth in columns 7-9. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Standard errors clustered at the firm level are in parenthesis. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth			Employment Growth			PPE Growth		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post Cut	-0.235***			-0.258***			-0.236***		
	(0.007)			(0.007)			(0.006)		
Cut × % Short-term Investors		0.190**			0.236***			0.265***	
		(0.082)			(0.071)			(0.059)	
Cut		0.000	0.007		0.010	0.002		0.005	0.003
		(0.011)	(0.009)		(0.010)	(0.010)		(0.009)	(0.009)
% Short-term Investors		0.163***			0.200***			0.290***	
		(0.060)			(0.055)			(0.050)	
Cut × Churn			1.719***			1.805***			2.262***
			(0.598)			(0.462)			(0.400)
Churn			0.442			0.452			1.222***
			(0.396)			(0.323)			(0.273)
Post Cut (t-1)		-0.018**	-0.033***		-0.038***	-0.048***		-0.044***	-0.046***
		(0.008)	(0.009)		(0.009)	(0.010)		(0.007)	(0.008)
Post Cut (t-1) × % Short-term Investors		0.091*			0.021			0.128***	
		(0.052)			(0.055)			(0.045)	
Post Cut (t-1) × Churn			0.646***			0.391*			0.587***
			(0.195)			(0.207)			(0.159)
% Institutional Investors		-0.135***	-0.138***		-0.051*	-0.067*		-0.069***	-0.110***
		(0.025)	(0.039)		(0.028)	(0.035)		(0.021)	(0.028)
Cut × % Institutional Investors		-0.058**	-0.162***		-0.080***	-0.151***		-0.064***	-0.172***
		(0.027)	(0.050)		(0.027)	(0.044)		(0.022)	(0.036)

Observations	28,068	21,939	23,895	28,068	21,939	23,895	28,068	21,939	23,895
R-squared	0.337	0.273	0.278	0.379	0.341	0.340	0.381	0.291	0.291
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 3: Response to Shocks

This table explores firms' responses to large tariff cuts. The dependent variable is sales growth in Panel A, employment growth in Panel B, and PPE growth in Panel C. 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 firm 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)	(7)
Cut × % Short-term Investors	0.163**	0.509***	0.496***	0.337***	0.401***		
	(0.066)	(0.087)	(0.087)	(0.098)	(0.103)		
Cut	-0.013	0.028**	0.024**			0.028***	
	(0.009)	(0.012)	(0.012)			(0.011)	
% Short-term Investors	-0.032	0.324***	0.295***	0.665***	0.271***		
	(0.046)	(0.057)	(0.057)	(0.051)	(0.064)		
Cut × Churn						4.164***	3.411***
						(0.646)	(0.731)
Churn						0.697*	0.738*
						(0.411)	(0.440)
% Institutional Investors		-0.303***	-0.307***	-0.322***	-0.285***	-0.264***	-0.247***
		(0.028)	(0.028)	(0.018)	(0.032)	(0.043)	(0.047)
Cut × % Institutional Investors		-0.202***	-0.189***	-0.091***	-0.165***	-0.410***	-0.355***
		(0.031)	(0.031)	(0.035)	(0.036)	(0.057)	(0.065)
ROA			0.194***	-0.002	0.174***	0.159***	0.141***
			(0.019)	(0.014)	(0.020)	(0.016)	(0.017)
Observations	25,220	25,220	25,017	24,779	24,471	27,724	27,191
R-squared	0.294	0.302	0.303	0.229	0.398	0.301	0.395
Firm FE	YES	YES	YES	NO	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	YES	NO
Industry x Year FE	NO	NO	NO	YES	YES	NO	YES

Table 3 continued.

Panel B: Employment Growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Cut × % Short-term Investors	0.158***	0.538***	0.531***	0.362***	0.440***		
	(0.061)	(0.081)	(0.082)	(0.096)	(0.096)		
Cut	-0.009	0.034***	0.032***			0.029***	
	(0.009)	(0.012)	(0.012)			(0.011)	
% Short-term Investors	0.026	0.304***	0.282***	0.650***	0.254***		
	(0.046)	(0.052)	(0.051)	(0.050)	(0.058)		
Cut × Churn						4.408***	3.692***
						(0.577)	(0.671)
Churn						0.461	0.748*
						(0.364)	(0.392)
% Institutional Investors		-0.244***	-0.247***	-0.361***	-0.235***	-0.205***	-0.221***
		(0.030)	(0.030)	(0.020)	(0.034)	(0.041)	(0.044)
Cut × % Institutional Investors		-0.218***	-0.210***	-0.099***	-0.187***	-0.428***	-0.374***
		(0.032)	(0.032)	(0.037)	(0.037)	(0.054)	(0.063)
ROA			0.146***	0.041***	0.138***	0.125***	0.114***
			(0.016)	(0.012)	(0.017)	(0.014)	(0.014)
Observations	25,220	25,220	25,017	24,779	24,471	27,724	27,191
R-squared	0.331	0.338	0.332	0.217	0.422	0.324	0.416
Firm FE	YES	YES	YES	NO	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	YES	NO
Industry x Year FE	NO	NO	NO	YES	YES	NO	YES

Table 3 continued.

Panel C: PPE Growth

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Cut × % Short-term Investors	0.193***	0.569***	0.564***	0.384***	0.455***		
	(0.054)	(0.071)	(0.072)	(0.082)	(0.083)		
Cut	-0.008	0.035***	0.033***			0.032***	
	(0.008)	(0.011)	(0.011)			(0.010)	
% Short-term Investors	0.168***	0.438***	0.422***	0.736***	0.411***		
	(0.041)	(0.049)	(0.048)	(0.044)	(0.053)		
Cut × Churn						4.698***	3.985***
						(0.521)	(0.583)
Churn						1.356***	1.410***
						(0.313)	(0.328)
% Institutional Investors		-0.238***	-0.242***	-0.304***	-0.225***	-0.233***	-0.219***
		(0.026)	(0.025)	(0.016)	(0.028)	(0.035)	(0.037)
Cut × % Institutional Investors		-0.215***	-0.210***	-0.123***	-0.176***	-0.443***	-0.381***
		(0.028)	(0.028)	(0.031)	(0.032)	(0.048)	(0.054)
ROA			0.119***	0.030***	0.112***	0.097***	0.087***
			(0.014)	(0.011)	(0.014)	(0.013)	(0.014)
Observations	25,220	25,220	25,017	24,779	24,471	27,724	27,191
R-squared	0.329	0.338	0.329	0.245	0.419	0.322	0.413
Firm FE	YES	YES	YES	NO	YES	YES	YES
Year FE	YES	YES	YES	NO	NO	YES	NO
Industry x Year FE	NO	NO	NO	YES	YES	NO	YES

Table 4: Long-term Effects

The dependent variable is Tobin's Q in Panel A and ROA (t+1) 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 are clustered at the firm level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Tobin's Q

	(1)	(2)	(3)	(4)	(5)
Post Cut × % Short-term Investors	0.722**	0.770**	0.636*		
	(0.314)	(0.310)	(0.330)		
Post Cut	-0.237***	-0.226***	-0.330***	-0.234***	-0.338***
	(0.043)	(0.042)	(0.054)	(0.037)	(0.047)
% Short-term Investors	0.913***	1.012***	0.964***		
	(0.241)	(0.236)	(0.257)		
Post Cut × Churn				4.444**	4.717**
				(1.999)	(2.098)
Churn				2.813*	2.684*
				(1.502)	(1.612)
% Institutional Investors	-1.106***	-0.698***	-0.561***	-0.576***	-0.449**
	(0.116)	(0.121)	(0.140)	(0.170)	(0.188)
Post Cut × % Institutional Investors	0.234**	0.191*	0.271**	0.043	0.041
	(0.115)	(0.112)	(0.126)	(0.179)	(0.194)
ROA		0.064	0.063	-0.024	-0.030
		(0.057)	(0.060)	(0.049)	(0.051)
Leverage		0.280***	0.304***	0.333***	0.350***
		(0.063)	(0.065)	(0.055)	(0.058)
Size		-0.286***	-0.359***	-0.263***	-0.327***
		(0.026)	(0.030)	(0.024)	(0.027)
Observations	24,667	24,661	24,107	27,282	26,739
R-squared	0.610	0.623	0.678	0.638	0.687
Firm FE	YES	YES	YES	YES	YES
Year FE	YES	YES	NO	YES	NO
Industry x Year FE	NO	NO	YES	NO	YES

Table 4 continued.

Panel B: ROA (t+1)

	(1)	(2)	(3)	(4)	(5)
Post Cut × % Short-term Investors	0.126**	0.126**	0.143*		
	(0.062)	(0.061)	(0.074)		
Post Cut	0.006	0.004	0.002	0.000	-0.002
	(0.011)	(0.010)	(0.014)	(0.010)	(0.013)
% Short-term Investors	-0.000	-0.016	-0.033		
	(0.055)	(0.055)	(0.064)		
Post Cut × Churn				1.322***	1.581***
				(0.392)	(0.512)
Churn				0.268	0.215
				(0.307)	(0.355)
% Institutional Investors	0.001	-0.026	-0.017	-0.059*	-0.056
	(0.027)	(0.026)	(0.032)	(0.034)	(0.040)
Post Cut × % Institutional Investors	-0.026	-0.021	-0.025	-0.096**	-0.118**
	(0.024)	(0.023)	(0.028)	(0.038)	(0.046)
Leverage		-0.055*	-0.052	-0.057**	-0.059**
		(0.032)	(0.033)	(0.029)	(0.029)
Size		0.019**	0.023***	0.023***	0.026***
		(0.008)	(0.009)	(0.008)	(0.009)
Observations	22,550	22,437	21,884	24,751	24,223
R-squared	0.642	0.640	0.668	0.658	0.682
Firm FE	YES	YES	YES	YES	YES
Year FE	YES	YES	NO	YES	NO
Industry x Year FE	NO	NO	YES	NO	YES

Table 5: Mechanisms

Panel A: Operational Changes

The dependent variable are R&D growth and advertising growth, in columns 1 and 2 and in columns 3 and 4, 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 firm level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	R&D Growth		Advertising Growth	
	(1)	(2)	(3)	(4)
Cut × % Short-term Investors	0.381***	0.249**	0.157*	0.228**
	(0.089)	(0.114)	(0.093)	(0.114)
Cut	0.042***		0.026*	
	(0.013)		(0.013)	
% Short-term Investors	0.380***	0.668***	0.159**	0.172*
	(0.057)	(0.067)	(0.071)	(0.099)
% Institutional Investors	-0.171***	-0.329***	-0.100**	-0.055
	(0.030)	(0.030)	(0.041)	(0.042)
Cut × % Institutional Investors	-0.169***	-0.082*	-0.094**	-0.091*
	(0.034)	(0.046)	(0.037)	(0.049)
ROA	0.048***	0.024*	0.030**	-0.063***
	(0.016)	(0.012)	(0.013)	(0.013)
Observations	25,017	24,779	25,017	24,779
R-squared	0.541	0.382	0.517	0.236
Firm FE	YES	NO	YES	NO
Year FE	YES	NO	YES	NO
Industry x Year FE	NO	YES	NO	YES

Table 5 continued.

Panel B: 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 through 6, the dependent variable is a dummy variable equal to one if a firm has engaged in diversifying M&A deals. An M&A deal is classified as diversifying if the 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 firm 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	0.095*	0.208***	0.142*	0.171**
	(0.075)	(0.057)	(0.053)	(0.055)	(0.077)	(0.078)
Cut	-0.017*	-0.007	-0.009		-0.004	
	(0.010)	(0.008)	(0.007)		(0.008)	
% Short-term Investors	0.168***	0.111**	0.020	-0.124***	0.008	-0.115**
	(0.065)	(0.050)	(0.045)	(0.043)	(0.047)	(0.046)
% Institutional Investors	-0.038	-0.040	-0.004	0.094***	0.002	0.090***
	(0.034)	(0.026)	(0.022)	(0.019)	(0.023)	(0.020)
Cut × % Institutional Investors					-0.025	0.019
					(0.030)	(0.031)
ROA	0.055***	0.020***	0.022***	0.013**	0.022***	0.013**
	(0.011)	(0.007)	(0.008)	(0.005)	(0.008)	(0.005)
Size	0.025***	0.010**	0.004	0.005	0.004	0.005
	(0.007)	(0.004)	(0.004)	(0.003)	(0.004)	(0.003)
# of M&As			0.218***	0.228***	0.218***	0.228***
			(0.029)	(0.027)	(0.029)	(0.027)
Observations	21,604	21,604	21,604	21,341	21,604	21,341
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 C: Product Differentiation

The dependent variable is the change in product differentiation, measured using the textual measure of product overlap of Hoberg and Phillips (2015). All models include a constant, and fixed effects as described in the table, whose coefficients are not reported. Standard errors are clustered at both the firm level and year level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
Cut × % Short-term Investors	-0.129**	-0.128**	-0.125**
	(0.045)	(0.047)	(0.049)
Cut	0.019	0.019	0.019
	(0.015)	(0.015)	(0.016)
% Short-term Investors	-0.025	-0.031	-0.032
	(0.035)	(0.037)	(0.036)
% Institutional Investors	-0.013	-0.012	-0.021
	(0.025)	(0.026)	(0.027)
ROA		0.024	0.018
		(0.024)	(0.029)
Leverage			-0.004
			(0.013)
Size			0.006
			(0.008)
Observations	14,256	14,242	14,210
R-squared	0.064	0.064	0.064
Firm FE	YES	YES	YES
Year FE	YES	YES	YES

Table 5 continued.

Panel D: Executive Turnover

The dependent variable is executive turnover, that is the number of executives leaving or joining a firm in the year following the tariff cut, 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 classification is based on two-digit SIC codes. Standard errors are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
Cut × % Short-term Investors	0.100*	0.104*	0.100*
	(0.061)	(0.059)	(0.059)
Cut	0.008	0.012	0.008
	(0.015)	(0.015)	(0.015)
% Short-term Investors	0.018	0.032	0.032
	(0.031)	(0.031)	(0.032)
% Institutional Investors	0.019	-0.005	-0.010
	(0.016)	(0.017)	(0.017)
Cut × % Institutional Investors	-0.024	-0.031	-0.029
	(0.029)	(0.029)	(0.029)
ROA	-0.133***	-0.120***	-0.120***
	(0.017)	(0.018)	(0.018)
Leverage		0.008	0.013
		(0.011)	(0.012)
Size		-0.004**	-0.003*
		(0.002)	(0.002)
# of Executives		0.036***	0.036***
		(0.002)	(0.002)
Observations	8,201	8,189	8,189
R-squared	0.039	0.088	0.092
Industry FE	NO	NO	YES
Year FE	YES	YES	YES

Table 6: Robustness

The dependent variable is indicated on top of each column. In Panel A, *Cut (t-1)* is the variable *Cut* lagged by one year. In Panel B, *% Short-term Investors (t-4)* is the variable *% Short-term Investors* lagged by four years. Standard errors are clustered at the firm level and are reported in parentheses. All models include 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: Placebo Tests

Dependent Variable	Sales Growth	Employment Growth	PPE Growth
	(1)	(2)	(3)
Cut (t-1) × % Short-term Investors	0.036	0.016	0.062
	(0.058)	(0.054)	(0.046)
Cut (t-1)	-0.008	-0.006	-0.003
	(0.008)	(0.007)	(0.006)
% Short-term Investors	0.269***	0.269***	0.420***
	(0.049)	(0.043)	(0.040)
% Institutional Investors	-0.177***	-0.087***	-0.108***
	(0.025)	(0.026)	(0.021)
Cut × % Institutional Investors	0.006	0.009	0.018*
	(0.013)	(0.011)	(0.009)
ROA	0.201***	0.147***	0.116***
	(0.020)	(0.016)	(0.013)
Observations	22,772	22,772	22,772
R-squared	0.281	0.331	0.278
Firm FE	YES	YES	YES
Year FE	YES	YES	YES

Table 6 continued.

Panel B: Endogeneity of Short-Term Institutional Ownership

Dependent Variable	Sales Growth	Employment Growth	PPE Growth
	(1)	(2)	(3)
Cut × % Short-term Investors (t-4)	0.254***	0.175**	0.225***
	(0.092)	(0.086)	(0.078)
Cut	-0.001	-0.004	0.007
	(0.012)	(0.011)	(0.010)
% Short-term Investors (t-4)	0.006	-0.024	-0.047
	(0.050)	(0.049)	(0.041)
% Institutional Investors (t-4)	-0.075***	-0.082***	-0.109***
	(0.025)	(0.028)	(0.022)
Cut × % Institutional Investors (t-4)	-0.036	-0.019	-0.052**
	(0.031)	(0.031)	(0.026)
ROA	0.211***	0.131***	0.099***
	(0.024)	(0.020)	(0.019)
Observations	16,134	16,134	16,134
R-squared	0.275	0.313	0.262
Firm FE	YES	YES	YES
Year FE	YES	YES	YES

Table 7: Instrumental Variable Analysis

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	% Short-term Investors	Cut × % Short-term Investors
	(1)	(2)	(3)
Large-cap (2000) × Decimalization	-0.019***	-0.020***	-0.034***
	(0.004)	(0.004)	(0.002)
Mid-cap (2000) × Decimalization	-0.009**	-0.010**	-0.024***
	(0.004)	(0.004)	(0.003)
Large-cap (2000) × Decimalization × Cut		0.014***	0.070***
		(0.004)	(0.007)
Mid-cap (2000) × Decimalization × Cut		0.005	0.069***
		(0.004)	(0.007)
Cut	0.002**	0.000	0.081***
	(0.001)	(0.001)	(0.002)
% Institutional Investors	0.315***	0.315***	0.081***
	(0.006)	(0.006)	(0.004)
ROA	0.010***	0.010***	0.001
	(0.002)	(0.002)	(0.001)
Observations	25,017	25,017	25,017
R-squared	0.758	0.758	0.607
Year FE	YES	YES	YES
Firm FE	YES	YES	YES

Table 7 continued.

Panel B: Second Stage

Dependent Variable	Sales Growth	Employment Growth	PPE Growth
	(1)	(2)	(3)
Cut × % Short-term Investors	1.448***	1.563***	1.239***
	(0.526)	(0.584)	(0.475)
Cut	-0.119**	-0.123**	-0.092**
	(0.048)	(0.052)	(0.043)
% Short-term Investors	-7.388***	-8.952***	-7.045***
	(2.226)	(2.556)	(2.119)
% Institutional Investors	1.972***	2.506***	1.987***
	(0.661)	(0.758)	(0.628)
ROA	0.269***	0.237***	0.193***
	(0.032)	(0.033)	(0.028)
Observations	25,017	25,017	25,017
R-squared	-0.457	-0.921	-0.723
Cragg-Donald Wald F Statistics	15.508	15.508	15.508
Year FE	YES	YES	YES
Firm FE	YES	YES	YES

Table 8: Exit Analysis

The dependent variable is *Death* in columns 1-3 and *Exit* in columns 4-6. *Death* is a dummy variable equal to one if in a given year a firm experiences a liquidation (CRSP delisting codes 400-490), is dropped (500-591), or expires (600-610), and zero otherwise. *Exit* is a dummy variable equal to one if in a given year a firm experiences a merger (CRSP delisting codes 200-290), an exchange (300-390), a liquidation (CRSP delisting codes 400-490), is dropped (500-591), or expires (600-610), and zero otherwise. Standard errors are clustered at the firm level and are reported in parentheses. All models include 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.

Dependent Variable	Death			Exit		
	(1)	(2)	(3)	(4)	(5)	(6)
Post Cut × % Short-term Investors	0.002	0.003	-0.005	0.008	0.020	0.011
	(0.007)	(0.008)	(0.010)	(0.017)	(0.018)	(0.023)
Post Cut	0.005*	0.006**	0.007**	0.016***	0.014***	0.019***
	(0.002)	(0.002)	(0.003)	(0.006)	(0.005)	(0.006)
% Short-term Investors	-0.007	-0.017***	-0.019**	-0.019	-0.041***	-0.046***
	(0.006)	(0.006)	(0.007)	(0.013)	(0.014)	(0.017)
% Institutional Investors	-0.020***	0.001	0.002	-0.064***	-0.010	-0.007
	(0.003)	(0.003)	(0.003)	(0.010)	(0.008)	(0.010)
Post Cut × % Institutional Investors	-0.007	-0.007*	-0.005	-0.018	-0.016	-0.012
	(0.005)	(0.004)	(0.005)	(0.012)	(0.011)	(0.014)
ROA		-0.028***	-0.028***		-0.044***	-0.046***
		(0.004)	(0.004)		(0.009)	(0.010)
Leverage		0.028***	0.028***		0.114***	0.117***
		(0.004)	(0.004)		(0.013)	(0.014)
Size		-0.003***	-0.003***		-0.014***	-0.013***
		(0.000)	(0.000)		(0.002)	(0.001)
Observations	24,826	24,591	24,053	24,826	24,591	24,053
R-squared	0.015	0.051	0.143	0.047	0.156	0.225
Industry FE	YES	YES	NO	YES	YES	NO
Year FE	YES	YES	NO	YES	YES	NO
Industry x Year FE	NO	NO	YES	NO	NO	YES

Table 9: Short-term Institutional Ownership Following Large Tariff Cuts

This table shows how short-term ownership varies in the years following large tariff cuts. In columns 1-3, the dependent variable is the fraction of short-term investors of a sample firm at year $t+1$. In columns 4-6, the dependent variable is a sample firm's *Churn* at year $t+1$. All models include a constant and firm and year fixed effects as described in the table, whose coefficients are not reported. Standard errors are clustered at the firm level and are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	% Short-term Investors			Churn		
	(1)	(2)	(3)	(4)	(5)	(6)
Post Cut	0.007***	0.005***	0.004**	0.001***	0.001**	0.001**
	(0.002)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)
% Institutional Investors		0.095***	0.096***		0.044***	0.042***
		(0.007)	(0.007)		(0.001)	(0.001)
ROA			0.032***			0.005***
			(0.003)			(0.001)
Leverage			0.008*			0.001
			(0.004)			(0.001)
Size			-0.001			0.001***
			(0.002)			(0.000)
Observations	19,725	19,711	19,566	21,302	21,268	21,087
R-squared	0.639	0.652	0.657	0.788	0.826	0.831
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Table 10: Considering Alternative Mechanisms

Panel A: Cash Holdings and Leverage

This table reports the baseline regression tests of Table 2 with additional controls for corporate cash holdings and leverage. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Standard errors are clustered at the firm level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth	Employment Growth	PPE Growth	Sales Growth	Employment Growth	PPE Growth
	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.441***	0.437***	0.458***	0.508***	0.529***	0.561***
	(0.087)	(0.085)	(0.075)	(0.087)	(0.082)	(0.072)
Cut	0.009	0.004	0.003	0.019	0.039***	0.038***
	(0.013)	(0.013)	(0.012)	(0.012)	(0.012)	(0.011)
% Short-term Investors	0.311***	0.304***	0.454***	0.295***	0.279***	0.423***
	(0.056)	(0.052)	(0.048)	(0.057)	(0.051)	(0.048)
% Institutional Investors	-0.312***	-0.253***	-0.250***	-0.307***	-0.245***	-0.241***
	(0.028)	(0.030)	(0.025)	(0.028)	(0.030)	(0.025)
Cut × % Institutional Investors	-0.172***	-0.177***	-0.176***	-0.194***	-0.213***	-0.212***
	(0.031)	(0.032)	(0.028)	(0.031)	(0.032)	(0.028)
Cash	-0.045	-0.009	-0.074***			
	(0.032)	(0.030)	(0.027)			
Cut × Cash	0.066*	0.118***	0.132***			
	(0.040)	(0.032)	(0.027)			
Leverage				0.000***	0.000***	0.000**
				(0.000)	(0.000)	(0.000)
Cut × Leverage				0.011	-0.011**	-0.006
				(0.008)	(0.005)	(0.005)
ROA	0.195***	0.145***	0.121***	0.196***	0.147***	0.119***
	(0.019)	(0.017)	(0.015)	(0.019)	(0.016)	(0.014)
Observations	25,011	25,011	25,011	24,961	24,961	24,961
R-squared	0.303	0.332	0.330	0.304	0.332	0.329
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Table 10 continued.

Panel B: Firm Size

This table reports the baseline regression tests of Table 2 with an additional control for firm size, 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. Standard errors are clustered at the firm level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth	Employment Growth	PPE Growth
	(1)	(2)	(3)
Cut × % Short-term Investors	0.479***	0.518***	0.536***
	(0.088)	(0.083)	(0.073)
Cut	0.039**	0.043**	0.054***
	(0.018)	(0.018)	(0.016)
% Short-term Investors	0.300***	0.280***	0.417***
	(0.057)	(0.051)	(0.048)
% Institutional Investors	-0.314***	-0.280***	-0.311***
	(0.029)	(0.033)	(0.027)
Cut × % Institutional Investors	-0.167***	-0.188***	-0.166***
	(0.033)	(0.035)	(0.030)
Size	0.002	0.023***	0.049***
	(0.006)	(0.007)	(0.006)
Cut × Size	-0.004	-0.003	-0.006**
	(0.003)	(0.003)	(0.003)
ROA	0.193***	0.130***	0.084***
	(0.019)	(0.017)	(0.015)
Observations	25,017	25,017	25,017
R-squared	0.303	0.333	0.334
Firm FE	YES	YES	YES
Year FE	YES	YES	YES

Table 10 continued.

Panel C: Family Block Ownership

This table reports the baseline regression tests of Table 2 with an additional control for family block ownership. 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. Standard errors are clustered at the firm level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth	Employment Growth	PPE Growth
	(1)	(2)	(3)
Cut × % Short-term Investors	0.496***	0.530***	0.564***
	(0.087)	(0.082)	(0.072)
Cut	0.024**	0.033***	0.034***
	(0.012)	(0.013)	(0.011)
% Short-term Investors	0.295***	0.282***	0.422***
	(0.057)	(0.051)	(0.048)
% Institutional Investors	-0.307***	-0.247***	-0.242***
	(0.028)	(0.030)	(0.025)
Cut × % Institutional Investors	-0.189***	-0.210***	-0.210***
	(0.031)	(0.032)	(0.028)
Cut × Family Block Ownership	-0.004	-0.013	-0.006
	(0.043)	(0.043)	(0.036)
ROA	0.194***	0.146***	0.119***
	(0.019)	(0.016)	(0.014)
Observations	25,017	25,017	25,017
R-squared	0.303	0.332	0.329
Firm FE	YES	YES	YES
Year FE	YES	YES	YES

Table 10 continued.

Panel D: Ownership Concentration and Dedicated Investors

This table reports the baseline regression tests of Table 2 with an additional control for ownership concentration and dedicated long-term investors. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Standard errors are clustered at the firm level and are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth	Employment Growth	PPE Growth	Sales Growth	Employment Growth	PPE Growth
	(1)	(2)	(3)	(4)	(5)	(6)
Cut × % Short-term Investors	0.499***	0.560***	0.598***	0.499***	0.534***	0.565***
	(0.091)	(0.084)	(0.073)	(0.087)	(0.082)	(0.072)
Cut	0.024**	0.032***	0.034***	0.015	0.011	0.005
	(0.012)	(0.012)	(0.011)	(0.016)	(0.016)	(0.015)
% Short-term Investors	0.286***	0.247***	0.387***	0.287***	0.272***	0.416***
	(0.060)	(0.054)	(0.050)	(0.057)	(0.051)	(0.048)
% Institutional Investors	-0.300***	-0.217***	-0.211***	-0.316***	-0.262***	-0.257***
	(0.033)	(0.034)	(0.028)	(0.029)	(0.031)	(0.025)
Cut × % Institutional Investors	-0.191***	-0.237***	-0.242***	-0.178***	-0.184***	-0.174***
	(0.037)	(0.037)	(0.032)	(0.034)	(0.034)	(0.030)
% Dedicated Investors	-0.032	-0.137**	-0.142**			
	(0.070)	(0.066)	(0.058)			
Cut × % Dedicated Investors	0.010	0.143	0.169**			
	(0.103)	(0.097)	(0.082)			
Ownership Concentration				-0.054*	-0.078***	-0.061***
				(0.029)	(0.027)	(0.023)
Cut × Ownership Concentration				0.030	0.068*	0.091***
				(0.038)	(0.038)	(0.034)
ROA	0.194***	0.146***	0.119***	0.191***	0.143***	0.117***
	(0.019)	(0.016)	(0.014)	(0.019)	(0.017)	(0.014)
Observations	25,017	25,017	25,017	25,017	25,017	25,017
R-squared	0.303	0.332	0.329	0.303	0.332	0.329
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Table 11: A Different Shock to the Economic Environment: Deregulation

This table reports regression results for industry deregulation events. The dependent variable is sales growth in columns 1 and 2, employment growth in columns 3 and 4, PPE growth in columns 5 and 6, and the change in Tobin's Q in column 7. All models include a constant and fixed effects as described in the table whose coefficients are not reported. Standard errors are clustered at the firm level and are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable	Sales Growth		Employment Growth		PPE Growth		ΔTobin's Q
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Deregulation × % Short-term Investors	1.133***		0.803*		0.933**		1.304***
	(0.392)		(0.456)		(0.386)		(0.465)
Deregulation	0.016	0.054*	0.052	0.070**	0.024	0.049*	-0.083**
	(0.031)	(0.028)	(0.042)	(0.035)	(0.031)	(0.029)	(0.040)
% Short-term Investors	0.410***		0.347***		0.453***		-1.622***
	(0.083)		(0.086)		(0.078)		(0.331)
Deregulation × Churn		7.614***		4.551		8.071***	
		(2.449)		(2.959)		(2.196)	
Churn		0.579		0.329		0.571	
		(0.409)		(0.315)		(0.409)	
% Institutional Investors	-0.223***	-0.151***	-0.182***	-0.112**	-0.167***	-0.087	0.155
	(0.042)	(0.053)	(0.046)	(0.050)	(0.040)	(0.054)	(0.119)
Deregulation × % Institutional Investors	-0.248**	-0.673***	-0.240	-0.472*	-0.320***	-0.785***	-0.118
	(0.122)	(0.216)	(0.150)	(0.266)	(0.120)	(0.193)	(0.131)
ROA	0.324***	0.307***	0.195***	0.190***	0.165***	0.172***	-0.500*
	(0.040)	(0.039)	(0.040)	(0.038)	(0.038)	(0.035)	(0.291)
Δ Leverage							0.025
							(0.055)
Observations	10,289	11,343	10,289	11,343	10,289	11,343	8,529
R-squared	0.324	0.318	0.385	0.374	0.304	0.305	0.121
Firm FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES