Product Market Competition Shocks, Firm Performance, and CEO Turnover[*]

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Abstract

We examine the effects of competition shocks induced by major industry-level tariff cuts on CEO turnover decisions. We find that both the likelihood of CEO turnover and the sensitivity of turnover to firm performance increases for turnovers that are characterized as "forced", when firm productivity is low, and when governance is weak. Performance improves after the turnover for forced turnovers relative to a matched sample of firms that do not experience turnover. These results are consistent with more intense competitive pressure "weeding out" inefficient management. We also find evidence that voluntary turnovers and turnover sensitivity to performance increase in response to more intense competitive pressure, consistent with "quiet life" preferences or predictions of competitive assignment models. However, we do not find strong evidence that performance changes after the turnover in these cases.

1. Introduction

Since Adam Smith, economists believe that competition is not only essential for efficient resource allocation, but is also a fundamental driver of productivity growth. However, there seems to be surprisingly little evidence that competition improves productivity or efficiency. Nickell (1996), for example, remarks that empirical support for the notion that competition improves corporate performance is, at best, weak. In this paper, we examine a particular channel through which more competitive pressure could potentially affect firm performance – namely, top management change. Specifically, we examine whether more competitive pressure in product markets affects (i) CEO turnover, (ii) the sensitivity of CEO turnover to firm performance, and (iii) whether such changes in turnover and turnover sensitivity occur more in less efficient firms and firms where agency problems are likely to be more severe. We also examine whether such turnover improves firm performance, although we are careful not to claim that there is a causal link from CEO turnover to performance improvements: CEO turnover in response to more competitive pressure could simply represent an organizational response to more intense competition that also leads to performance improvements.

There are several empirical challenges to examining the relationship between competition and CEO turnover. The first is a typical reverse causality problem that arises because of the endogeneity of measures of industry concentration/competition to performance or incentives. Critiques of the traditional "Structure-Conduct- Performance" paradigm point out that industry concentration could itself be a result of competitive behavior [e.g., Demsetz (1973), Schmalensee (1989), Sutton (1991), Aghion et al. (2005), Symeonidis (2002), and Raith (2003)]. Establishing causality from measures of concentration to CEO turnover is also difficult for a similar reason: measures of concentration could be affected by retention policy rather than the other way around, or both may be jointly determined by other industry characteristics. For example, firms with high ability CEOs may enjoy significant cost advantage and at the same time may have little need to fire CEOs. Such firms are also likely to capture higher market

share. An industry with a higher proportion of firms with high ability CEOs may thus appear more concentrated and at the same time have little CEO turnover. [1]

Further, even when measures of concentration such as the Herfindahl-Hirschman Index (HHI) are based on both public and private firms [Ali, Klasa, and Yeung (2009)], these could be misleading in a globalized world where U.S. firms face competition from foreign firms. For example, if almost all the U.S. firms retreat from a certain industry after foreign competition goes up, that industry would show high concentration, hence low competition, based on either Compustat or Census universe of firms. But in reality it is more intense competition that drove most U.S. firms away, and the remaining U.S. firms in that industry continue to face stiff competition.

To overcome the challenges posed by the standard measures of competition such as the HHI, we focus on *exogenous* shocks that result in *changes* in product market competition. Specifically, following prior research, we exploit exogenous cuts in industry-level import tariffs as a quasi-natural experiment that, via reductions in trade barriers, substantially increases the competition from foreign rivals [e.g., Feenstra (1996), Feenstra, Romalis, and Schott (2002), Fresard (2010), Valta (2012), and Fresard and Valta (2013)].[2] This strategy is advantageous in addressing our research questions to the extent that the cuts are in the nature of exogenous shocks to the competitive environment, so that a causal interpretation about the responses of firms in an industry to these competitive shocks is possible; indeed, the above-mentioned studies provide detailed supporting evidence and arguments regarding the exogeneity of these cuts.[3] Taking advantage of the different timing of these cuts across industries, as well as industries without any cuts during our sample period, we adopt a difference-in-difference (DID) approach to

[1] Two studies relate the Herfindahl-Hirschman Index (HHI) and managerial turnover. DeFond and Park (1999) find a significantly negative correlation between CEO turnover and the HHI based on publicly listed Compustat firms, which they consider as evidence of more product market competition increasing CEO turnover. In contrast, Ali, Klasa, and Yeung (2009) show that the negative correlation disappears when HHI is instead based on Census data that contains both publicly listed and private firms. While these existing empirical studies are thoughtfully executed, concerns about endogeneity present a significant challenge for empirical research on this topic.

[2] For example, Tybout (2003) provides an excellent survey on how increased foreign competition reduces domestic markups and raises competition in general. See also, e.g., Baldwin (1988), Baldwin and Krugman (1989), Dixit (1989), and Bernard, Jensen, and Schott (2006).

[3] In section 6 of the paper, we explicitly address the issue of exogeneity of the tariff cuts. We show that tariff cuts are not predicted by overall industry performance measures. Moreover, our results hold for the post-WTO period when tariff cuts were multilateral and less likely to be endogenous to specific industry conditions.

examine the relation between competition and CEO turnover. In addition, we also examine how the sensitivity of CEO turnover to *firm performance* is affected after the tariff cuts. In all our tests, we control for prior trends in the industry by including an indicator variable ("Before") that takes a value of 1 either one or two years prior to the major tariff cut in the industry, and zero otherwise, as well as the interaction of this variable with firm performance. Both the indicator variable and its interactions are insignificant in all our tests. We also replicate our key results in the context of a linear probability model incorporating fixed firm effects, which further addresses endogeneity concerns related to tariff cuts.

An additional advantage of our design is that the tariff cuts are more in the nature of shocks to the competitive environment, rather than cross-industry variation in competition. Arguably, this is precisely the environment one would like to study to understand whether competition weeds out inefficient managers, or whether it has any other effects. This is so because, in steady state, the weeding out would already have taken place, and it is by no means clear that one would be able to identify the effect of a change in the competitive environment from variations in the degree of competition in the cross-section. Moreover, competitive shocks to industries deserve to be studied in their own right because they are quite frequent; their effects on managerial turnover persist for some time as it takes several years for firms in the industry adjust to these shocks and attain steady state; [4] and the responses that occur when industries are in disequilibrium often have longer-term implications for the firm. To that extent, the issues we address in this paper are of considerable relevance. In particular, it is of great importance to know how firm heterogeneity along several dimensions, such as the quality of governance, productivity, information asymmetry and so on, affect CEO retention when the firm is subject to heightened industry-wide competitive pressure.

A second challenge we need to address is that turnovers may occur for "voluntary" reasons, and not because of the disciplining mechanism of more intense competition. The CEO turnovers we examine are internal or "standard" turnovers (following Kaplan and Minton (2012)) so that they include potentially

[4] For example, the post-tariff cut firm-years over which we document heightened turnover in response to tariff cuts that occurred no more than five years earlier, comprise 44% of all sample firm years.

voluntary as well as non-voluntary or forced turnovers (and exclude turnovers due to bankruptcies, mergers and acquisitions (M&As), and so on). There are several reasons why CEO departures from firms in an industry could increase when the industry faces an exogenous increase in competition. One argument consistent with competitive assignment models [Gabaix and Landier (2008), Tervio (2008)] is that the CEOs' marginal productivity would be lower in firms in the affected industry, so they would now be "reassigned" to firms outside the industry.[5] Such turnovers would be in the nature of voluntary turnovers. Other reasons as to why voluntary turnovers could increase would be a preference for a "quiet life" [Bertrand and Mullainathan (2003)], since the CEO would have to work harder for the firm to survive in the industry subject to the shock, or simply because survival likelihood is now lower.

To address this issue, we follow two approaches. The first is to modify standard algorithms that have been used in the literature (e.g., Parrino, Sias and Starks (2003)) to classify a turnover as "voluntary" or "forced". It has been pointed out [Kaplan and Minton (2012), Jenter and Lewellen (2010)] that the standard algorithms potentially misclassify forced turnovers as voluntary. Such a misclassification, if present, affects only the voluntary turnover sample. Since our primary objective is to demonstrate that forced or disciplinary turnovers are responsive to increased competition, the main challenge this poses is a small sample size of forced turnovers. Therefore, a second way in which we try to isolate a disciplinary mechanism is to examine whether turnover and performance-sensitivity of turnover increases after tariff cuts for firms more likely to have agency problems, such as those with weaker governance, lower productivity, or poorer prior performance. This procedure generates much larger subsamples for which we can test our hypotheses.

Why should more intense competition cause more disciplinary turnovers and increase the sensitivity of such turnovers to performance? One possibility is that corporate boards become more proactive when threatened with firm survival (e.g., out of reputational concerns), and fire managers who

[5] In these models, the more talented CEOs are assigned to larger firms in equilibrium. An adverse competitive shock to the industry such as a tariff cut is equivalent to a decrease in the present value of expected future profits for the average firm in the industry, or what these models would call "firm size". Therefore, CEOs of firms in the industry would now be reassigned to other firms of larger size after the shock.

have been underperforming prior to the tariff cut. This is, in fact, one of the main supposed benefits of competition, namely, that it weeds out inefficient firms or managers.[6]

Not only is disciplinary CEO turnover expected to increase due to the increase in competition, the sensitivity of turnover to performance is also likely to increase. There are two important reasons why this might happen. One is that firm performance conveys information about managerial type. A proactive board may update its posterior assessment that a manager is of poor quality after observing a given magnitude of underperformance relative to peers; however, since managerial quality is likely to matter more for firm survival in a harsher competitive environment, the threshold for quality may be higher. This implies that the same relative underperformance will increase the likelihood that the CEO is fired. Second, the quality of information conveyed by underperformance may also change when competition is tougher – for example, when all managers in the industry are shirking, a given underperformance may not convey as much meaningful information about the quality of a manager as when they are all working hard.[7] For either of these reasons, a board that is proactive may be more likely to fire a manager for underperformance – i.e., the sensitivity of performance to turnover could increase when there is a positive shock to competition. [8]

For the overall sample, we find that CEO turnover increases significantly in the five–year period subsequent to a major tariff cut in the industry.[9] We find that when a major tariff cut occurs, the likelihood of CEO turnover in the affected industry increases by five percentage point. The unconditional probability of turnover is 15%, implying that the tariff cuts lead to a 30% increase in the probability of turnover. We also find that turnover becomes more sensitive to operating performance, though not to stock returns.

[6] Competition is also supposed to align the incentives of managers, on which there is a growing literature. We discuss this literature briefly in the next section.
[7] See Jenter and Kanaan (2010) for a similar argument.
[8] It is also possible that the manager himself learns about his type (and hence the chance of the firm surviving under his management) by observing the firm's performance relative to industry. A given underperformance can increase the likelihood that the manager leaves voluntarily when competition is more intense.
[9] Our results are robust to several alternative choices of the post-turnover time interval, and ways of quantifying major tariff cuts.

As noted above, these results are consistent with a variety of arguments that encompass both voluntary and forced turnovers. When we classify turnovers based on whether these are described as "forced" or "voluntary", we find that the likelihood of a departure increases for both categories, but only forced turnovers are more sensitive to both operating and stock performance. We also partition firms into subsamples based on performance relative to industry over the past three years. Chang et al. (2010) argue that managers of firms that outperformed the industry over the recent past are more likely to be good quality managers than those of firms that underperformed, and thus less likely to be fired following the cut. On the other hand, underperformers are unlikely to have good outside opportunities, and therefore their departures are more likely forced as opposed to voluntary. We find that departures after tariff cuts become more likely for both categories of firms, suggesting that both types of departures are in effect. We also find that the sensitivity of departures to stock performance increases after the tariff cuts for the underperforming group; however, no such effect can be found for the outperforming group, further confirming our hypothesis.

Next, we classify firms into two groups based on various measures of productivity. We find that in less productive firms, managers are more likely to leave after the tariff cuts. Moreover, the sensitivity of turnover to performance also increases for the low productivity firms. We do not find such effects in the high productivity subsample. These results suggest that more intense competition does indeed weed out less efficient managers. Moreover, to the extent that outside opportunities for managers (especially of low productivity firms) are unlikely to improve because the industries they are in are experiencing tariff cuts, managers of inefficient firms bear costs for their inability to improve the productivity of their firms when faced with more intense competition.

Agency problems are more likely to be severe for firms with weak governance. If, as documented by Jenter and Lewellen (2010), strong boards are doing a better job of replacing inefficient management, then when competition intensifies, it is the poor boards that will be more proactive in replacing management, provided they are responsive to the increased threat of survival brought about by more intense competition. Again, we find very consistent results. Managerial turnover and the sensitivity of

turnover to performance both increase after the tariff cuts for the firms with weak governance, but not for those with strong governance firms. Thus, these results strongly suggest that boards that have not been diligent in the past become more proactive when the firms are threatened with survival due to more intense competition, and replace inefficient managers.

As noted above, some of our subsample results suggest that some turnovers could be non-disciplinary in nature, and occur either because managers are reassigned to firms where their marginal productivities would be higher, or because they prefer a quiet life, or because they expect survival to be more difficult. Such departures could also be more sensitive to performance after the tariff cut because more competition makes performance more informative about the likelihood of survival. One group of firms that is especially vulnerable to competition are the financially constrained firms that, due to information asymmetry, have difficulty in raising external finance and have to rely on internal funds. Therefore, managers of such firms could quit at a higher rate after the cut, and also to be more likely to quit if subsequent performance is poorer. We find very consistent evidence in support of this hypothesis over a variety of financial constraint measures. Note that the financially constrained firms are not necessarily less efficient (the group that competition is supposed to weed out), but typically smaller firms less known to investors. Given the abundance of evidence that the smaller firms are among the more innovative in the economy, these results raise a potential dark side of competition, if losing capable managers makes it even more difficult for these firms to survive. We find similar results for firms with smaller market share, that are also less likely to survive under more intense competition as they have fewer established brands and smaller customer base, and firms with more information asymmetry, which could be more vulnerable to predation by rivals and thus less likely to survive when there is more intense competition.

If competition does indeed weed out inefficient managers, then at least for the forced turnover sample, we should expect performance improvements after turnover, although such an outcome may simply reflect the effect of organizational responses that trigger the turnover, and not the effect of an underperforming CEO *per se*. We match firms that experience CEO turnover with those that have the

same probability of turnover in the turnover year, but do not experience a turnover. When turnover is forced, we find that average performance in the three years after the turnover compared to that in the three years before the turnover year improves for the turnover sample relative to the non-turnover sample when performance is measured in terms of profit margin, return on equity, or sales growth. However, while performance also improves for the voluntary turnover sample, except for return on equity, the effect is not statistically significant. The results for the forced turnover sample are consistent with competition generating an efficiency-enhancing response for at least a subsample of firms. It is worth noting that these results probably underestimate the magnitude of the improvement since firms that do not experience turnover could also be responding to competitive pressure in other ways to improve efficiency.[10]

We believe our paper is the first one to examine the effect of shocks to competition on CEO retention decisions. It is related to two recent papers that have been briefly mentioned earlier. Both Jenter and Kanaan (2010) and Kaplan and Minton (2012) examine the sensitivity of turnover to stock performance. While Jenter and Kanaan (2010) examine forced turnovers, Kaplan and Minton (2012) study all internal (standard) turnovers as well as turnovers due to mergers and bankruptcy/delistings. Both papers find that turnover is negatively related to market-adjusted stock performance. An interesting result is that turnover is more sensitive to both firm-specific and industry-induced performance when industry performance is poorer. Jenter and Kanaan (2010) conclude that this could either reflect the fact that boards learn more about CEO type when the environment is tougher, or they misattribute poor firm performance to poor CEO ability when in fact it represents an adverse industry shock.

Our study is related to these two papers in that tariff cuts correspond to sharply worse industry conditions. We examine turnover response to tariff cuts, as well as to benchmark-adjusted performance

[10] We follow the career paths of departing CEOs and when we are able to identify another executive position that they end up with, collect information on pay and the size and industry of the firm they join. We find that when an industry experiences a tariff cut, CEOs are less likely to end up with an executive or a board position when the turnover is forced; however, no such effect exist for voluntary turnovers. These results are consistent with the disciplinary nature of turnovers classified as forced. Conditional on obtaining an executive position, we find that when an industry experiences a tariff cut, the departing CEOs are less likely to end up in another firm of larger size or with higher pay, and are also less likely to end up in the same industry. Since these turnovers are more likely to be voluntary, these latter results are consistent with "quiet life" considerations, but less consistent with arguments that more intense competition enables higher ability CEOs to showcase their talent and create market opportunities.

(since we control for both industry and year fixed effects). Notably, whereas the above-mentioned studies consider only stock return performance, we examine both operating as well as stock return performance, and find highly consistent results. The higher turnover response to the tariff cut, per se, could reflect inadequate filtering, or attribution bias. However, it is hard to explain why the board's attribution bias should only be evident for firms with fewer independent board members, less institutional ownership, or more financial constraints. In contrast, all our results are consistent with the notions that retention decisions in a tougher environment are determined by more stringent thresholds and more learning about CEO ability based on performance.

Our results based on the exogenous competition measure of import tariff cuts on retention complement the prior findings of DeFond and Park (1999) based on HHI, which were shown to be not robust to alternative constructions of the HHI [Ali, Klasa, and Yeung, 2009]. The quasi-natural experiment of exogenous change in tariff rates arguably provides a "cleaner" measure of variation of competitive conditions to address this important issue. Moreover, when regulators formulate competition policy, they are more likely to be concerned about the effects of *changes to competitive conditions* within an industry rather than on cross-industry comparisons. Our design directly addresses this issue, and suggests that shocks to competition can have important effects on firms' managerial retention decisions, which in turn likely affect their ability to cope with these shocks. Not all our evidence indicates that competition weeds out the least efficient. While more competition does indeed weed out managers of the least productive firms, and causes boards of poorly governed firms to become more proactive, it also leads to the departure of managers of financially constrained firms that are less able to cope with competition, not because they are less efficient but because there is less information about their firms in the public domain.

The rest of our paper is organized as follows. Section 2 discusses the related literature and hypothesis. Section 3 describes the data. Sections 4 and 5 present the main empirical results. Section 6 discusses robustness checks, and Section 7 concludes.

2. Related Literature and Hypotheses

2.1 Literature Overview

2.1.1 Competition and Retention

The idea that competition, by ensuring survival of the fittest, improves efficiency has a long history. We do not attempt to review that literature here. While there is an evolving literature on the effect of competitive conditions on the provision of (effort) incentives,[11] CEO retention decisions have been modeled more as learning about CEO type based on performance or other signals: firing occurs if the posterior on the CEO's ability falls below a threshold. Retention decisions as incentive schemes and their response to change in competition remain relatively unexplored.[12] One argument why more competition can improve inference about CEO ability is that the presence of more market players can make is easier to filter out common shocks better, and this may lead to an increase in the usage of relative performance evaluation (RPE) [e.g., Holmstrom, 1982; Nalebuff and Stiglitz, 1983]. [13]

2.1.2 Turnover and Performance Sensitivity of Turnover

How the unconditional survival likelihood of CEOs has changed over time is of interest, in part because the nature of corporate governance, shareholder activism, and public attitudes towards CEO pay have also evolved.[14] Kaplan and Minton (2012) study CEO turnovers from 1992-2007 for a sample of large US public firms and find that turnover increased and the average tenure of the CEO decreased in the post-2000 period.

Much of the attention, however, has focused around the sensitivity of turnover to performance. The motivating theoretical framework[15] is that the board learns about the CEOs ability based on past performance, and filters out any component common to the firm in question and other firms by comparing

[11] See, for example, Hart (1983), Scharfstein (1988), Hermalin (1992), Schmidt (1997), and Raith (2003).
[12] However, if both effort and ability affect performance, and thus inference about ability, then retention decisions will also affect the CEO's effort incentives. Therefore, incentive contracts may have to be designed to allow for better inference of ability. How competition affects such incentive contracts remains an unexplored issue.
[13] Jenter and Kanaan (2010) note that the theoretical literature does not consider CEO retention/firing decisions as mechanisms for incentive alignment but rather an one of ensuring that the "right" person is at the helm. We discuss this further below.
[14] See for example, Huson, Parrino, and Starks (2001), Holmström and Kaplan (2001), Hermalin (2005), and Kaplan (2008) for evidence that corporate governance has improved since the 1970s.
[15] See Holmström (1982) and Gibbons and Murphy (1990).

the firm's performance relative to that of industry peers. This gives rise to relative performance evaluation, and the CEO is retained if and only if the posterior assessment of the CEOs ability exceeds the expected ability of a replacement CEO.

Prior literature finds evidence of turnover-performance sensitivity (Murphy (1999) and Jensen et al. (2004)). However, the implied changes in the probability of turnover in response to a change in relative performance are rather weak.[16] In a more recent study, Kaplan and Minton (2012) find larger relative performance sensitivities, which are the highest for the post-2000 period. Kaplan and Minton (2012), unlike some earlier studies, do not only focus on forced turnovers, because they argue that many forced turnover are misclassified as voluntary. Based on a similar argument but a different empirical methodology, Jenter and Lewellen (2010) also examine all internal turnovers, and estimate substantial turnover-performance sensitivities.

A related issue in this literature is the role of performance benchmarks. The theory of retentions outlined above suggests that the benchmarks should be filtered out and themselves should not have any effect on turnover decisions. However, both Kaplan and Minton (2012) and Jenter and Kanaan (2010) find that turnover is also sensitive to the benchmark, suggesting incomplete filtering. Jenter and Kanaan (2010), for example, find that turnover is more sensitive to both firm-specific and industry-induced performance when industry performance is poorer. Jenter and Kanaan (2010) conclude that this could either reflect the fact that boards learn more about CEO type when the environment is tougher, or they misattribute poor firm performance to poor CEO ability when in fact it represents an adverse industry shock.

A final issue in the turnover-performance literature concerns the role of the quality of governance. There is, at best, weak evidence from earlier literature that better corporate governance increases the sensitivity of CEO turnover to performance. A variety of governance proxies have been examined in the literature, including the GIM-Index, shareholder blockholdings, board independence,

[16] See, for example, Warner, Watts, and Wruck (1988), Weisbach (1988), Jensen and Murphy (1990), Denis, Denis, and Sarin (1997), Murphy (1999), and Huson, Parrino, and Starks (2001).

board size, equity ownership by directors, and institutional ownership. Kaplan and Minton (2012) find that the presence of independent directors and blockholding increase the performance-sensitivity of turnover. Jenter and Lewellen (2010), using a new methodology to measure performance sensitivity, find much more significant effects. Over the first five years of tenure, the difference in turnover probabilities between top and bottom quintile performers is 73 percentage points for strong boards (defined as small boards with majority of independent directors and high director ownership), but only 30 percentage points for weak boards.

2.2 Hypotheses

More intense competition due to a tariff cut is best thought of as a leftward shift of the demand curve (residual demand) for existing firms in the industry. We are interested in the question of how such a shift affects both CEO turnover, as well as the sensitivity of turnover to performance, and in particular, relative performance.

A permanent leftward shift of the demand curve for domestic US firms is equivalent to a decrease in the market value of the average firm, or what would be called firm "size" in competitive assignment models of the CEO labor market, as in Gabaix and Landier (2008) or Tervio (2008). In these assignment models, more talented managers are assigned to firms of larger size. Thus, in frictionless assignment models without agency problems and perfect congruence of shareholder and managerial objectives, tariff cuts would cause a "reassignment" of CEOs throughout the economy, with CEOs of firms in the industry experiencing the tariff cut moving to other firms (within or outside the industry) of larger size. [17]

In practice, however, there are many frictions that might violate the assumptions underlying these competitive assignment models. These frictions include information asymmetry about managerial talent, managerial objectives such as preference for a quiet life or empire building, board capture, and other frictions related to search in the labor market. Thus, while some departures are likely outcomes of the forces or the managerial labor market, and therefore are voluntary in nature, others may reflect frictions of

[17] To the best of our knowledge, Eisfeldt and Kuhnen (2013) is the only paper that studies how shocks to industry affect competitive assignment.

the type discussed above. Manager and board behavior are therefore likely to reflect considerations that go beyond the implications of frictionless assignment models.

Consider managers first. A substantial literature in corporate finance postulates that managers have a preference for a "quiet life" and would rather be at a firm or an industry where they do not have to work hard [Bertrand and Mullainathan (2003)]. Therefore, when competition intensifies, managers may want to look for opportunities in other industries. A closely related argument is that managers may want to quit voluntarily simply because the survival likelihood of their firms deceases when there is a tariff cut-induced increase in the intensity of competition. Thus, these considerations and the implications of the competitive assignment models all suggest that managerial turnover increases for voluntary reasons when there is more intense competition due to tariff cuts.

Managers may also have imperfect knowledge about their own abilities, or the challenges they face in a new environment after the tariff cut. Thus, they may learn about both these aspects from the performance of the firm after the tariff cut, and may be more likely to leave after poor relative-to-industry performance. Moreover, they may learn more from the same relative performance in a more competitive environment, when all managers are exerting more effort, than when there is more slack. Finally, the same underperformance may be perceived as a more negative signal about the prospects of survival in a more competitive environment. Therefore, voluntary departures are also expected to be sensitive to performance, and more so after the tariff cuts.

Next, we turn to corporate board's likely response to more intense competition induced by tariff cuts. Here, the departures from the implications of competitive assignment models are quite stark. Low ability managers, or managers whose skills sets are obsolete, may survive when they are entrenched, and since their outside opportunities may not be very good, even the pressure of competition may not compel them to quit as long as they enjoy protection from the board. However, if boards are concerned about the damage to their reputations when firm survival is threatened, then they are likely to make decisions that would ensure firm survival. Such decisions might involve bringing in a different manager either of higher ability or with a different set of skills (e.g. one that is a specialist at cutting costs or restructuring). It is

also possible that boards, in general, tolerate some inefficiency when times are good, but toughen up when survival is threatened. These types of replacement decisions reflect an upward adjustment of ability thresholds above which managers are retained[18] when the tariff cut occurs, together with updating of priors on managerial ability or survival likelihood based on performance after the cut. Thus, such turnovers, which would typically be in the nature of forced turnovers, would increase following the cut and would also be more sensitive to performance after the cut.

The above arguments lead to the following set of testable hypotheses:

H1. *(a) Tariff cuts will lead to more (voluntary as well as forced) CEO turnover for firms in the industry over some period of time immediately after the cut (relative to other periods).*

(b) Tariff cuts will be associated with greater sensitivity of turnover to benchmark-adjusted performance over some period of time immediately after the cut (relative to other periods).

(c) Turnover and performance-sensitivity to turnover will increase more over some period of time immediately after the cut (relative to other periods) for firms that face greater competitive pressure from rivals (e.g. those producing products that are more similar to competitors, or less unique products) than for those facing less pressure.

Our arguments above suggest that both voluntary and forced turnovers are consistent with H1 (a) – H1 (c). It is important to further investigate whether the evidence is consistent with both types of turnover occurring subsequent to the tariff cuts, since the efficiency implications of these two types of turnovers could be very different. This exercise is not straightforward, however, since it is difficult to directly determine whether a departure is truly voluntary. Kaplan and Minton (2012) and Jenter and Lewellen

[18] The threshold is best thought of as a cutoff value of the posterior probability assessment that a manager is of high ability, such that the manager is retained if, and only if, the posterior assessment exceeds the threshold.

(2010) argue that standard algorithms to classify departures as voluntary versus forced are highly imperfect, and in fact, turnovers classified as voluntary might actually be forced. [19]

We first consider forced turnovers. First, we note that while there is concern regarding the validity of classification of turnover using standard algorithms, there is little concern that the forced turnover sample includes voluntary cases – the concern is the other way around. Hence, we directly test whether, for the forced turnover sample formed using standard algorithms, the turnover likelihood and sensitivity of turnover to performance are higher after the cut than in other periods.

Second, we examine whether the turnover likelihood and sensitivity of turnover to performance are higher for the sample of past underperformers after the cut than in other periods. There is evidence that the managerial labor market draws inference about managerial ability from the past performance of the firm under a manager [Fee and Hadlock (2003) and Chang et al. (2010)], that is, past performance correlates positively with (perceived) ability. In particular, Chang et al. (2010) find that past underperformers are unlikely to have good market opportunities and leave voluntarily.

Third, we examine if turnover and performance-sensitivity of turnover increase more after the tariff cut for less productive firms (measured, for example, in terms of total factor productivity) than for more productive ones. This hypothesis is directly motivated by the idea that more competition weeds out the less efficient firms or managers. Note that less productive firms are also less likely to survive after more intense competition; however, the outside opportunities for unproductive managers firms are likely to be limited, so accelerated departures by these managers are more likely to be forced than voluntary.

Finally, we examine whether the quality of governance matters, which is an issue of independent interest. We discuss this next.

As discussed in the previous sections, except for a recent paper by Jenter and Lewellen (2010), attempts to find an effect of governance quality on the performance-sensitivity of turnover have had

[19] Note that one reason for questioning the classification based on standard algorithms seems to be that turnovers classified as voluntary according to these algorithms also exhibit sensitivity to performance. However, our arguments above suggest that when managerial learning is involved, turnovers can be performance sensitive even when they are not forced.

rather limited success. This is in contrast to, for example, studies that document that the quality of governance has significant implications on performance, especially when product market competition is weak [Bertrand and Mullainathan (2003), Giroud and Mueller (2010)]. Jenter and Lewellen (2010) use a new methodology and find that the quality of governance does make a major difference to this sensitivity. An implication of their finding is that firms with poor governance would be harboring CEOs of lower ability. Therefore, if reputation is threatened by lower likelihood of survival, weaker boards would be more likely to become proactive, and replace low ability managers. Thus, we hypothesize that both the likelihood of turnover and the performance-sensitivity of turnover will be higher after tariff cuts for weaker boards compared to stronger ones.

H2. *Consistent with forced turnover, we expect that both CEO turnover and the sensitivity of turnover to performance will:*

(a) be higher for turnovers classified as "forced" over some period of time immediately after the cut than in other periods.

(b) be higher for the sample of prior underperformers over some period of time immediately after the cut than in other periods.

(c) increase more over some period of time immediately after the cut (relative to other periods) for lower productivity firms than high productivity firms.

(d) increase more over some period of time immediately after the cut (relative to other periods) for firms with weaker governance than those with stronger governance.

We next propose several hypotheses and corresponding empirical tests relating to how the incidence of voluntary turnovers and the performance-sensitivity of such turnovers should manifest after the tariff cuts. We discuss these below.

First, we examine the sample of past outperformers (firms that outperformed their industry benchmarks prior to the tariff cut), and examine whether turnover and performance-sensitivity of turnover

is higher during some time period immediately after the tariff cut than in other periods. Since more intense competition is unlikely to motivate corporate boards to fire perceived high ability managers, a higher incidence of departures for the past outperformer subsample after the tariff cuts suggest that the frequency of voluntary departures increases. A similar argument applies if turnover for such managers shows higher performance-sensitivity.

Second, we compare whether departure rates and the sensitivity of turnover to firm performance increase more after the cut for financially constrained firms, those with low market share, and those associated with more information asymmetry, than, respectively, financially unconstrained firms, those with high market share and those with less information asymmetry. Firms that face more financial constraints are likely to find survival and growth even more challenging after the tariff cuts than before, compared to unconstrained firms. Thus, consistent with both "quiet life" and competitive assignment model arguments, CEOs of such firms are more likely to quit. [20] This incentive will be further reinforced by poor relative-to-industry performance, so that the performance-sensitivity of turnover will also increase more for these firms.[21] Firms with more information asymmetry could become more vulnerable to predation by rivals [Bolton and Scharfstein (1988)] if the returns from costly predatory activity are higher for the rival firms when competition is more intense.[22] Finally, a similar argument applies to firms with small market share, since these firms have fewer established brands, less market power and lower margins, and thus are less likely to compete successfully. Thus, we have the following:

[20] Financial constraints could also, in theory, reflect agency problems related to potential for investment in bad projects, and therefore managerial turnovers in financially constrained firms could be consistent with disciplinary turnovers. However, the empirical proxies for financial constraints, such as firm size, or the availability of a bond rating, capture adverse selection-related constraints. To invest in bad projects and be subject to discipline, firms need enough internal and external financing to exhaust all good projects, a requirement that is unlikely to be met by these firms.

[21] Performance-sensitivity of turnover can increase after the tariff cut relative to other periods because of a more competitive environment, as argued previously. However, it is less clear why this effect will be stronger for financially constrained than for unconstrained firms. Higher increase in performance-sensitivity for financially constrained firms compared to unconstrained firms is consistent with the same underperformance pushing managers of the former firms below an already higher threshold for voluntary departure.

[22] The return from predation decreases if there are more players, since the benefit of driving out a rival is shared with more (free riding) firms in the industry. However, the cost of predation also decreases if it is harder for the target of predation to survive when there is more competitive pressure.

H3. *Consistent with voluntary turnover, we expect that both CEO turnover and the sensitivity of turnover to performance will:*

(a) be higher for the sample of prior outperformers over some period of time immediately after the cut than in other periods.

(b) increase more over some period of time immediately after the cut (relative to other periods) for financially constrained firms than for unconstrained firms.

(c) increase more over some period of time immediately after the cut (relative to other periods) for firms with more information asymmetry than those with less.

(d) increase more over some period of time immediately after the cut (relative to other periods) for firms with low market share than for those with high market share.

Finally, it is likely that the nature of the turnover will have implications for subsequent performance. For example, if the turnover is disciplinary, one would expect that performance would improve – not only, or necessarily, because poor quality managers are forced out and replaced by better quality managers, but because such turnovers could reflect an organizational response to the challenge of competition. In contrast, for voluntary turnovers, there are no clear predictions.[23] Thus, we have:

H4. *For forced turnovers, we expect performance to improve following the turnover relative to that immediately before, compared to a matched sample of firms with the same propensity for turnover in the same year which does not experience any turnovers*.

3. Sample and Data

[23] One possibility is that some low ability managers leave because they update their private assessments about their own abilities and anticipate being replaced – in such cases, performance could improve after the turnover if they are replaced by more capable managers. On the other hand, managers with better outside options may leave as they perceive the survival likelihood of the firms to be lower with the onset of competition, leaving those with lower ability and worse outside options in charge. In this case, performance could deteriorate after turnover. This latter scenario is also consistent with departures related to "quiet life" preferences or with more capable managers being "reassigned" to firms where their marginal productivities are higher, as implied by competitive assignment models.

To measure reductions in import tariffs at the (four-digit SIC) industry level, we use product-level U.S. import data compiled by Feenstra (1996) and Feenstra, Romalis, and Schott (2002). These data span the period 1992-2005 and include 199 manufacturing industries (2000-3999 SIC range). For each industry-year, we compute the ad valorem tariff rate as the duties collected by U.S. Customs divided by the Free-on-Board value of imports. Next, to identify sizeable variation in barriers to trade, we follow Fresard (2010) to characterize tariff reductions in terms of the deviations in the yearly changes in tariffs from their median level. Accordingly, a tariff "cut" occurs in a specific industry-year when a negative change in yearly tariff rate is 3 times larger than its median change in the industry over our sample period.[24] Moreover, to make sure that large tariff reduction truly reflect non-transitory changes in the competitive environment, we exclude tariff cuts that are followed by equivalently large increases in tariffs over the subsequent two years.

We obtain CEO turnover data from the Standard and Poor's (S&P) ExecuComp database, which covers about 1,500 firms each year that are in the S&P 500, S&P mid-cap 400, and S&P small-cap 600 indices. In general, our sample period covers 1992 to 2005. We choose this sample period in order to match the tariff data. We include all firm-years that have an identifiable CEO (using CEOANN). We obtain stock return data from the Center for Research in Security Prices (CRSP) and firm characteristics from the Compustat Industrial and Segment files. Governance data are from RiskMetrics (formerly called IRRC). After merging the tariff data with the CEO data from ExecuComp, we are left with 111 unique four-digit SIC industries. There are 77 industries experiencing at least one tariff cut during our sample period, while the rest of 34 industries experiencing none. We drop all industries for which we do not have tariff data.

While we mainly focus on the change of import tariff, the change of export tariff could be triggered at the same time as part of the bilateral (or multilateral) agreements between U.S. and other countries. Thus, it is not obvious that the demand curve for exporting firms shifts left following the import tariff reduction as the export market can improve simultaneously. To address such concerns, we

[24] If the industry median is zero, then any negative tariff change will be defined as cut.

exclude all exporting firms. An exporting firm is defined as having positive export sales recorded in Compustat. On average, export firms account for 27.3% of the sample per year. In robustness checks reported in Section 6, we show that inclusion of exporting firms does not affect our main results.

We define turnover in a given fiscal year t to occur if the CEO in year *t* is no longer the CEO by the following year *t+1*. We exclude all "non-standard turnover", that is due to an acquisition or bankruptcy/delisting. Panel B of Table 1 presents the level of CEO turnover by year and by type. The turnover rate for standard turnovers, our focus (as in much of the literature[25]) is 13.63%, and that for non-standard turnovers due to acquisition and delisting is 3.06%. The total turnover rate in our sample is 16.69% over the entire sample period, implying average CEO tenure of 6 years. Kaplan and Minton (2012) report a 15.6% turnover rate using S&P 500 firms for a slightly different sample period.

Over the sample period, the tariff rate is 1.22%, but it can be as large as 29.64% for some sectors and zero for others. The substantial variation of tariff rate across industries can also be inferred from large standard deviation of 2.11%. As prior literature shows that CEO turnover rate is negatively associated with firm performance, we use two measures for firm performance, return on assets (ROA) and one-year stock return (RET). Other firm level control variables include the following. *Salechg* is defined as annual sales growth from year t-1 to year t. *Assets* is the natural logarithm of firm's total assets. *Q* (which represents Tobin's Q) is defined as the sum of market value of equity and market value of debt divided by replacement value. *Volatility* is the standard deviation of firm's monthly stock return from year t-5 to year t-1.

4. Empirical Results

4.1. CEO turnover and tariff cuts

We test our first hypothesis H1(a) by estimating a Probit regression of CEO turnover on our measure of competition.

[25] See, for example, Huson et al (2001), Jensen, Murphy and Wruck (2004), Murphy and Zabonjik (2004), Jenter and Lewellen (2010).

$$Prob\left(CEO\ Turnover_{i,t}\right) = \delta \times CUT5_{POST} + \beta_0 \times PM_{t-1} + \gamma' X_{i,t-1} + \varphi_j + \gamma_t + \varepsilon_{i,j,t} \qquad (1)$$

The dependent variable is 1 if there is a CEO turnover event for a firm in a particular year, and 0 otherwise. Subscript i, j and t represent the firm, industry and year, respectively. Our measure of competition is CUT_POST5, which is an indicator variable that is equal to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. We use a five-year as post-event window because we are interested in the response of firms in the industry to the shock, which is likely to occur soon after the incidence of the shock.[26] Further, any change in CEO turnover in the long run is likely to be influenced by many other confounding factors. The coefficient of interest is the effect of the competition shock, δ. This approach allows comparing the change in CEO turnover rate in industries that experienced a competitive shock in any of the previous five years to the change in CEO turnover rate in industries that do no experience a competitive shock in any of the previous five years. Note that this approach is similar to a standard Difference-in-Difference approach used by Bertrand and Mullainathan (2003) because all industries do not experience a competitive shock at the same time. More specifically, at any time t, the treatment group includes all firms in industries that experience a tariff cut. The control group is not restricted to industries that never experience a tariff cut. It implicitly takes as the control group all firms from industries not experiencing a tariff cut in the previous five years, even if they have already experienced a shock or will experience one later on. In all regressions, we also include industry and year fixed effects, which is necessary to identify the within-industry and within-year change in CEO turnover rate between treated and untreated groups when competition intensifies.

Our performance measures (PM_{t-1}) are the firm's operating performance (ROA) and stock performance (stock returns) in the year prior to the turnover[27]. Because we control for industry and year fixed effects, our performance measures are essentially adjusted for same year and same industry

[26] For example, a firm may be able to find a CEO with the "right" set of skills for the new environment quickly, so no further adjustment is expected in the longer run in response to the shock.

[27] We also measure performance as three-year average prior to the turnover. All our results are quantitatively similar.

benchmarks. We also include other control variables described in Table 1. We use a dummy variable indicating whether the CEO is aged 65 and above. The standard errors are robust and clustered by two-digit SIC codes.

Panel A in Table 2 tests Hypotheses H1(a). We run a baseline Probit regression in column 1 that only includes the firm performance and other control variables in order to make sure our results are in line with prior literature. The two measures of firm performance, ROA and stock returns, are both negatively related to the CEO turnover likelihood, which confirms that CEO turnover often occurs after poor performance. We then add the dummy for tariff rate cut (CUT_POST5) in column 2.[28] Consistent with hypothesis H1 (a), the likelihood of CEO turnover is positively associated with the tariff rate cut, the coefficient on CUT_POST5 is significantly positive ($p<0.05$). In terms of economic magnitude, holding other variables at the mean, CEO turnover likelihood increases from 15% to 20%, or a jump in unconditional probability of about 30% (= (20 – 15) / 15), when an industry experiences a substantial tariff rate cut.

To investigate the possibility of a similar trend in CEO turnover prior to the tariff cut, possibly related to industry trends to which the tariff cut could be endogenous,[29] we create a dummy variable, *Before*, which equals one if the time period is one or two years before a specific industry experiences a substantial tariff reduction. Adding this variable allows us to assess whether any change in CEO turnover can be found prior to the increase of industry competition. Finding such an "effect" in a time period other than the event window can also be regarded as a symptom of tariff cut being anticipated, which challenges the exogenous nature of competition shock. We replicate the regression in column 2 by adding this dummy variable in column 3. We find that its coefficient estimate is insignificant.

[28] Note that this also mitigates the misspecification problem that might arise if industry performance is not included as a control [Jenter and Kanaan (2010)].

[29] In section 6, we directly address the issue of exogeneity of tariff cuts to industry conditions by showing that tariff cuts cannot be predicted on the basis of industry conditions such as capital expenditures or sales growth. We also re-estimate our main models on the post-WTO period, during which tariff cuts were mostly multilateral in nature and less likely to be influenced by specific industry conditions, and for tariff reduction years that involved above-median number of industries subject to tariff cuts.

We next test hypothesis H1(b) by adding an interaction term between tariff cut dummy and two performance measures (PM). Hence, equation (1) changes to the following:

$$Prob\left(CEO\ Turnover_{i,t}\right) = \delta \times CUT5\_Post + \beta \times CUT5\_Post \times PM_{t-1}$$
$$+\beta_0 \times PM_{t-1} + \gamma' X_{i,t-1} + \varphi_j + \gamma_t + \varepsilon_{i,j,t} \quad (2)$$

If CEO turnover is more sensitive to past performance after the tariff cut, we would expect the coefficients (betas) on the interaction terms $CUT5\_POST \times PM_{t-1}$ to be negative and significant. Notice that in such a specification, the sensitivity betas pick up within-industry variation in turnover to firm performance, and thus are even less likely to be subject to the concern that tariff cuts are endogenous to industry conditions.[30]

The results in column 4 confirm that the sensitivity of CEO turnover to firm performance increases after the tariff cut as both interactions turn out to be negative though not significant. To control for potential trend prior to the cut, we add an interaction term between *Before* and two relative performance measures in column 5. The interaction between CUT_POST5 and ROA is -0.752, significant at 5% level, whereas the interaction between CTI_POST5 and stock returns remains insignificant. There are various possible reasons for this weaker latter result in turnover-performance sensitivity – in particular, the competitive shock may affect some types of firms less significantly than others. We examine this issue in detail in the next sections.

Finally, since the Probit is a non-linear model, incorporation of firm fixed effects produces biased estimates due to the incidental parameter problem, and estimation of a large number of fixed effects in this setting also is impractical. To control unobserved firm-level heterogeneity, we estimate a linear probability model with firm fixed effects. The results, reported in Table 1 of Appendix B, produces very similar results to those in Table 2.

4.2 Product Substitutability

[30] Our industry dummies are at the 2-digit SIC level. However, it is likely that if common industry trends influence tariff cuts, all industries that share the same 2-digit code are affected, and such common trends are filtered out, leaving only the effect of the tariff cuts.

In this section, we examine the relation between tariff reduction and CEO turnover when firms are likely to face more competitive pressure from rivals. Hypothesis H1(c) maintains that firms with greater competitive pressure from rivals will experience more CEO turnover and performance-sensitivity of turnover after the tariff cut.

To measure competitive pressure from rivals, we use two firm level proxies: product similarity and R&D expenditure. The product similarity measure is based on Hoberg and Phillips (2011). Combining web crawling and text parsing algorithms that process the text of product descriptions in 10-K annual filings with cosine similarity method, Hoberg and Phillips (2011) calculate the firm-by-firm pairwise similarity scores.[31] We expect firms whose products are more similar or less specific to the firm face more pressure from product market. Sutton (1991) and Shaked and Sutton (1987) suggests that firms use R&D to differentiate their products from those of competitors. This product differentiation makes it more expensive and difficult for rivals to compete with these firms. So our second proxy is firm's R&D expenditure. For each proxy, we partition our sample firms into two groups depending on whether the competition proxy in the year before the tariff cut is above or below the industry mean. We then run the same Probit regressiosn as in Table 2 for each of the two subgroups separately to examine the effect of tariff cut on the CEO turnover during the subsequent five years.[32]

The results are presented in Table 3. Panel A examines the frequency of CEO turnover. For each proxy, the first column includes firms facing less competition and the second column those facing more competition. Overall, the coefficient on CUT5_POST is significantly positive only in the second columns, and insignificant in the first columns. For example, the coefficient of CUT5_POST is 0.379 and significant at the one percent level for firms whose products are more similar to those of their peers. The Wald test indicates that the difference across the two groups is also statistically significant. In Panel B, we add an interaction term between CUT5_POST and two performance measures to examine the effect of

[31] For firm i, they subtract a minimum threshold from each pairwise similarity score between firm i and all the other firms and then sum up resulting differences if the they are above zero in order to obtain the HP total similarity index for firm i. Note that the index would generally change every year, given the changes in product descriptions of firm i or of firms with products similar to firm i.

[32] The partition is done at year t-1, the cut is in year t, and the turnover is examined from year t+1 to year t+5.

competition pressures on turnover-performance sensitivity. We then perform the subgroup analysis for each of the two proxies. We find that the coefficient on the interaction between CUT5_POST and both the firm performance measures is significantly negative only for the firms facing more competition pressure. The Wald tests further indicate that the incremental sensitivity difference across two groups is significant in 3 out of 4 cases. Overall, we provide evidence that for firms with less unique or more similar products to those of competitors, more intense competition creates stronger incentives for survival, and as a result, both the frequency of CEO turnover and the sensitivity of CEO turnover to performance change dramatically after a substantial industry tariff cut.

4.3 Voluntary and Forced Turnover

In the previous section, we showed that both the level of CEO turnover and the sensitivity of CEO turnover to performance increase when there is greater competition induced by tariff cuts. So far, we did not make a distinction between voluntary turnover and forced turnovers. However, the mechanism behind our main results might differ in nature depending on the type of CEO turnover. For example, voluntary turnover can increase if CEO prefers a quiet life when it is more difficult to deliver good performance in a more competitive environment. On the other hand, due to increased pressure from the product market, the board of directors may proactively fire poor quality CEOs to give the firm a better chance of survival. To more clearly identify the mechanism through which CEOs departure rate increases following tariff cuts, we need to separate CEO turnovers into voluntary ones and forced ones. This is what we pursue in this section.

Following Parrino, Sias and Starks (2003), a succession is classified as forced if the Wall Street Journal reports that the CEO is fired, forced from the position, or departs due to unspecified policy differences. For the remaining cases, the succession is classified as forced if the departing CEO is under the age of 60 and the Wall Street Journal announcement of the succession does not report the reason for the departure as involving death, poor health, or the acceptance of another position (elsewhere or within the firm) or the announcement reports that the CEO is retiring, but does not announce the retirement at least six months prior to the succession. The circumstances surrounding the departures of the second

group are further investigated by searching the business and trade press for relevant articles to reduce the likelihood that a turnover is incorrectly classified. These successions are reclassified as voluntary if the incumbent takes a comparable position elsewhere or departs for previously undisclosed personal or business reasons that are unrelated to the firm's activities.[33] Since we try to follow the departing CEOs career path, we use one additional filter – when the CEO cannot be found in a new position in any of the data bases and the age is below 60, we consider the departure as forced. In order to include both types of turnover in our Probit regression, we use multinomial regression allowing for three CEO turnover outcomes: retention, voluntary turnover, and forced turnover, with the benchmark being retention.

As argued by Kaplan and Minton (2012) and Jenter and Lewellen (2010), the classification algorithm described above could potentially mis-classify many forced turnover as voluntary. However, it is very unlikely that the mis-classification would be the other way around. Thus, we can reliably only interpret the effects of tariff cuts on forced turnovers, corresponding to hypothesis H2(a).

Table 4 presents the results from a two-stage *multinomial* Probit regression. We examine the frequency of turnover in the first two columns. The coefficient on CUT5_POST is positive and significant for both voluntary and forced turnover. When competition increases, we observe more CEOs are fired or replaced. In columns 3 and 4, we examine the turnover-performance sensitivity by including an interaction term between CUT5_POST and two performance measures. The interaction terms for both ROA and RET are negative and significant for forced turnover, but insignificant for voluntary turnovers. The results suggest that forced turnovers are more sensitive to firm performance after the tariff cut. This is consistent with the notion that forced turnover increases after the cut because boards has less tolerance for less efficient managers and the performance threshold for the retention is higher.

While we do find the likelihood of voluntary turnovers to increase following the shock (suggesting that more CEOs leave the firm voluntarily for a better outside opportunity or a quiet life), as noted, it can be questioned whether these turnovers are truly voluntary. Moreover, while we are less concerned about misclassification for the forced turnover sample, the possible mis-classification of forced

[33] Comparable positions include any position among the top 5 executives in the firm.

turnovers as voluntary also leaves us with a relatively small number (*281*) of turnovers classified as forced. To mitigate such concerns of misclassification as well as small sample size, in the subsequent sections, we test hypotheses H2 (a)-(d) and H3 (a)-(d). These hypotheses are based on the idea that a particular type of turnover and sensitivity of that type of turnover to performance is only expected for certain subsamples, but not expected for the corresponding complementary subsample.

4.4 Previous Underperformers and Outperformers

To further investigate the underlying reason behind voluntary and forced turnovers, we separate the sample firms in the same industry (two-digit SIC code) into two groups based on whether the past three-year firm performance is above or below the industry mean. We argue that managers of the firms that outperformed the industry over the past three years are more likely to be good quality managers and therefore their departures are more likely to be voluntary (H3(a)). In contrast, managers of firms that underperformed are unlikely to find good outside opportunities; hence, their departures are likely to be forced (H2(b)).

The results are presented in Table 5. Panel A examines the frequency of turnover. In the first two columns, firms are split into below (low) or above (high) industry mean based on their past three year average Return on Assets (ROA). In the last two columns, firms are split into below (low) or above (high) industry mean based on their past three year buy and hold stock return (RET). The coefficient on CUT5_POST is positive and significant in both underperforming and outperforming groups regardless whether the prior performance is measured by accounting numbers or stock returns. We then add an interaction term between CUT5_POST and two performance measures in Panel B to examine the effect of tariff cut on turnover-performance sensitivity across the two performance groups. The interactions are negative and significant for underperforming groups only. As underperforming managers are more likely to be fired,[34] the results here suggest that the turnovers in the underperforming group are disciplinary in nature.

[34] One may still argue that both underperforming and outperforming managers may choose to leave the firm voluntarily after observing the past performance and updating the posterior about her ability. This is precisely what

4.5 Firm Productivity and Forced CEO Turnovers

One of the primary virtues of competition is that it does not tolerate inefficiency. Therefore, we would expect managers in less efficient firms to be punished more with the increasing competition. In this section, we classify firms into efficient and inefficient groups based on various measures of productivity.

We use three distinct measures for productivity; total factor productivity, the ratio of firm sales over the number of employees, and the ratio of firm net income over the number of employees. Total factor productivity is measured as the residual from the regression of the logarithm of net sales on the logarithm of net property, plant and equipment and the logarithm of the number of employees. We partition our sample firms into two groups based on whether their productivity in the year before the tariff cut is either above or below the industry average. We then run the same Probit regression as in Table 2 for each of the two subgroups to test hypothesis H2(c).

The results are presented in Table 6. Panel A examines the frequency of CEO turnover. The coefficients on CUT_POST5 are significantly positive for firms with productivity lower than the industry mean, but insignificant for firms with productivity higher than the industry mean. By adding the interaction term between CUT_POST5 and two performance measures in Panel B, we find that the coefficients on the interaction between CUT_POST5 and firm performance are (with one exception) significantly negative for these same subgroups, but (with one exception) insignificant for the other group of firms. Overall, the results here suggest that for firms that are far from the technology frontier, tariff reduction has a significant impact on the frequency of CEO turnover and the sensitivity of CEO turnover to performance, consistent with competition weeding out less efficient CEOs.

4.6 Corporate Governance and Forced CEO Turnover

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the reassignment model predicts. We believe it is unlikely to be the case. For above mean group, the correlation between CUT5_POST and CUT5_POST*ROA and CUT5_POST*RET is 0.12 and 0.24, respectively. For below mean group, the correlation between CUT5_POST and CUT5_POST*ROA and CUT5_POST*RET is -0.13 and -0.48, respectively. This suggests that past outperformers continue to do well, whereas past underperformers do poorly, in the post-cut period. This seems inconsistent with the notion that past outperformers lose CEOs because their marginal productivities are lower after the cut, as would be the case for competitive reassignment.

If weak boards are doing a worse job of replacing inefficient management (Jenter and Lewellen, 2010) than strong boards, then an increase in the intensity of product market competition should make the weaker boards more proactive in replacing managers if they are concerned about firm survival (e.g., due to reputational concerns). In this section, we discuss our tests of this hypothesis (H2(d)).[35]

We use four proxies for governance. Our first measure is G-Index in Gomper, Isshi and Metrick (2001). Firms with high values of the G-Index are characterized by weak shareholder (or strong managerial) power, creating slack and inefficiency. Moreover, entrenched CEOs may also be under less pressure to perform under normal times. Thus, our second measure is Entrenchment Index (or E-Index) in Bebchuk and, Cohen and Ferrell (2009). A less independent board may be captured by CEOs and therefore more likely to tolerate underperforming or less competent CEOs during normal times. We calculate the proportion of outsider directors on the board as proxy for board independence. Finally, as institutional investors are better monitors than individual shareholders [Denis and Denis (1999), Harford and Li (2010)], boards of firms that have lower institutional ownership are also more likely to subject boards under pressure to dismiss less capable CEOs unless the firm is under extreme stress. Thus, the percentage of shares held by institutional investors is our fourth measure of governance.

To test our hypothesis, we partition our sample firms into two groups based on the value of the governance proxy as of the year before the tariff cut. We define poor (good) governance firms as those with percentage of independent directors (alternatively, institutional ownership) below (above) the industry mean, or G-Index or E-Index above (below) the industry mean. We then estimate Probit regressions similar to those in Table 2 for each of the two groups for each governance variable.

The results are represented in Table 7. Panel A examines the frequency of CEO turnover. The coefficients on CUT_POST5 are significantly positive for the weak governance subsamples in 3 out of 4 cases, but not significant for the strong governance subsamples. The coefficients for the two subsamples

[35] Amore and Zaldokas (2011) examine the impact of the U.S.-Canada Free-Trade Agreement of 1989 and find that the impact of more competition on firm performance was more negative on firms in U.S. states that had enacted business combination laws that weakened corporate governance. This is consistent with our argument that firms with weaker boards are more at risk of survival when competition intensifies.

are also significantly different for these three cases. These results are consistent with our argument that boards that did not monitor effectively and allowed slack during normal times are the ones more affected by increased competition, and thus forced to weed out inefficient managers. We then examine the sensitivity of CEO turnover to firm performance in Panel B. After the industry tariff rate is reduced, CEO turnover is more strongly and negatively associated with firm performance for firms with poor governance, while firms with strong governance show insignificant change in the sensitivity of CEO turnover to firm performance. However, only the coefficients of the incremental effect of RET are significantly different across the subsamples. Overall, the results in Table 7 are consistent with our hypothesis.

4.7 Financial Constraints, Market Share and Voluntary Turnovers

Both CEO's preference for quiet life and the competitive assignment models predict that managers will find more attractive employment in other firms in the economy when industry competition intensifies. Moreover, both theories apply especially to firms facing more financial hardship in a tougher market condition, such as firms that are ex ante more likely to be financially constrained, those with smaller market shares, or those subject to more information asymmetry (which could make the firm a target for predation). In this section, we examine the effect of tariff cut on CEO turnover and turnover-performance sensitivity conditional on financial constraints, firms' information environment, and market shares (hypotheses H3 (b), (c) and (d)).

Following Almeida, Campello, and Weisbach (2004), Campello and Graham (2012), and Almeida, Hsu, and Li (2013), we consider five measures of financial constraints: the WW index (Whited and Wu, 2006), firm size measured by market equity, firm age measured by the number of years since the firm joined CRSP_Compustat merged database, payout ratio, and rating received for firm's long term debt. The last two measures are coded as dummy variables that equal to one if firms pay dividend or receive an S&P rating for long term debt. For each measure of financial constraint, all firms in the same two-digit SIC industry are divided into two subgroups based on whether the proxy in the year before the tariff cut is above or below the industry average, or whether the dummy variable is one or zero. Note that

constrained firms have a higher WW index, smaller size or age, a zero payout ratio policy, or no S&P ratings for long term debt. We then estimate the baseline regression for the constrained and non-constrained groups separately.

The results for financial constraints are presented in Table 8. Panel A examines the frequency of CEO turnover. The first column for each proxy is for the subgroup that comprises firms with higher degree of financial constraints measured one year before the tariff cut. For example, the coefficient on CUT_POST5 in column 1 is significantly positive for firms with higher WW index, but insignificant for firms with lower WW index in column 2. The Wald chi-square tests indicate that the difference of two coefficients across two subgroups is statistically different from zero at the 5% level. Columns 2 to 10 repeat the analysis by using other four variables as our proxy for financial constraints. The results are very similar to those in the first two columns. In Panel B, we add an interaction term between CUT_POST5 and relative performance measure. We then perform the subgroup analysis for each of the measures. We find that the coefficient on the interaction between CUT_POST5 and firm performance is significantly negative only for the firms facing more severe financial constraints. This is true regardless of whether we use continuous variables based on firm size or age or dummy variables based on payout ratio or debt rating. Overall, we provide evidence that for firms facing more severe financial constraints, more intense competition creates stronger incentives for departure, and as a result, both the frequency of CEO turnover and the sensitivity of CEO turnover to performance change dramatically after a substantial industry tariff cut.

Following prior literature, we use several proxies for the firm's information environment. Our first proxy is return volatility, as measured by the standard deviation of daily returns during one year prior to the tariff cut. In addition, we use two measures of analysts' forecast errors in earnings [Gilson et al. (1998) and Krishnaswami and Subramanian (1998)]. One is the mean of analysts' earnings forecast error, and the other is the dispersion of analysts' earnings forecast error. Our prior is that firms with higher return volatility, higher earnings forecast error and larger dispersion of earnings forecast error will be more subject to predation, since external markets will find it difficult to understand whether lower

profitability is due to poor firm/management quality which is especially costly in bad times, or predatory activity by rivals. Thus, firms with more information asymmetry will face even tighter financial constraints following tariff cuts, especially if performance is poor.[36] Therefore, we expect that for such firms, more intense product market competition will lead to more CEO turnover, and also more sensitivity of turnover to performance.[37]

The results for information asymmetry are presented in Table 9. Panel A examines the frequency of CEO turnover. The coefficients on CUT_POST5 are significantly positive for firms with higher return volatility, and for firms with greater dispersion as well as mean of earnings forecast error. By adding the interaction term between CUT_POST5 and firm performance measures in Panel B, we find that the coefficients on the interaction between CUT_POST5 and firm's accounting and stock market performance are significantly negative for these same subgroups, but insignificant for the other subgroup of firms.

We use three distinct market share measures -- market share based on firm sales, market share based on firm's total assets and market share based on firm's net income. To test our hypothesis, we partition our sample firms into two groups based on whether their market share before the tariff cut is above or below the industry median. We then run the same Probit regression as in Table 2 for each of the two groups.

Table 10 shows the results for market share. Panel A examines the frequency of CEO turnover. The coefficients on CUT_POST5 are significantly positive only for non-dominant firms with less market share than industry mean. It is robust and consistent regardless of which market share measure we use. However, tariff cut has no significant influence on CEO dismissal if a firm is dominant in market share before the event.

[36] See Bolton and Scharfstein (1990) for a model that endogenizes financial constraints in the presence of predation. A lower cost of predation (likely in times of more intense competition due to entry of foreign firms) in their model leads to tighter financial constraints.

[37] We note, however, that a higher threat of predation is not the only likely explanation for our results for firms with greater information asymmetry. Inefficient managers are more likely to survive in an environment in which monitoring is more difficult due to information asymmetry [Demsetz and Lehn (1985), Gillan, Hartzell and Starks (2003), Raheja (2005), Boone et al. (2007); Linck et al. (2008)]. When competition intensifies, boards may more proactively weed out such managers.

By adding the interaction term between CUT_POST5 and firm performance measures in Panel B, we find that the coefficients on the interaction between CUT_POST5 and firm accounting performance and stock return performance (with one exception) are significantly negative for the below-mean subgroup, but insignificant for the other group of the firms. Overall, the results here suggest that for non-dominant firms or those with smaller market share, the frequency of CEO turnover and the sensitivity of CEO turnover to performance change dramatically after the industry experiences a substantial tariff reduction, consistent with voluntary turnovers as survival becomes more difficult.

5. Firm Performance and CEO Career Moves after Tariff Reduction

5.1 Post-turnover performance

To better understand the effect of CEO turnover decisions when the competition intensifies, we now turn to examine the change of firm performance when CEO is replaced (Hypothesis H4). To do so, we use a difference-in-differences approach. We consider forced and voluntary turnovers separately. We define "treated" firms as those that experience a forced (voluntary) CEO turnover in any of following five years in industries that experienced tariff cuts. We next construct a sample of "matched" firms that are similar to treated firms except for the occurrence of CEO turnover. More specifically, for each treated firm, with replacement, we choose its nearest neighbor in the same year of turnover based on firm size, same industry (2-digit SIC code) and the implied probability of CEO turnover.[38] In other words, matched firms are those that share similar predicted odds of CEO as treated firms, but the board just did not respond (for forced turnovers) or the CEO decided not to quit (for voluntary turnovers). Hypothesis H4 suggests that if forced turnovers represent an organizational response to more intense competition, then we would expect the treated firms to perform better than their matched counterparts. The matching

[38] The implied probability of turnover is calculated based on the Probit regression in Column 1, Table 2. We do not restrict ourselves to firms at the same 4-digit SIC industry as the one experiencing turnover subsequent to the tariff cut because doing so forces us to choose from a much smaller set of firms, and the propensity matching becomes much more noisy.

procedure minimizes the possibility that cross-sectional differences across firms and industries affect the difference.

Table 11 presents the results. We use three-year averages of profit margin, ROE, sales growth and Tobin's Q to measure firm performance before and after the turnover. In Panel A, we reports results for the forced turnover sample. Consistent with Hypothesis H4, for all four measures, performance measures decrease less for the treated group than for the control group, although the difference is not significant for Tobin's Q. In Panel B, we report the corresponding results for the voluntary turnover group. Although the treatment group again fares better for all four measures than the control group, we only see a significant effect (at the 10% level) for ROE. It is also worth noting that, although these samples are unmatched in terms of propensity of turnover, the performance deterioration for the voluntary turnover sample are much weaker than for the forced turnover sample. Not surprisingly, this is also true of the respective matched samples.

5.2 Post-turnover labor market outcomes

How does more intense competition affect the labor market outcomes of the CEOs who quit? If some of the turnovers are disciplinary in nature, we expect that a higher fraction of the turnovers immediately following the tariff cuts would result in no new appointments, and that this effect should mainly result for the sample of forced turnovers. Moreover, it is also interesting to investigate whether more competition allows the market to infer CEO ability better (as we argued in Section 2, more completion is likely to not only raise ability thresholds for CEO retention, but could also enable better inference), and allows the more talented CEOs to voluntarily leave the firm for better jobs. To examine these issues, we track the career outcomes of the departing CEOs by manually checking the relevant information in BoardEx and Capital IQ. Out of 974 turnovers during our sample period, 133 or 13.6% of CEOs find an executive position (CEOs or VPs) in another firm, 584 or 60% of CEOs become a non-executive director in a new firm, the rest stay as unemployed.

In order to gauge whether more intense competition leads to punitive departures, we create a dummy variable that takes a value of 1 if the departing CEO finds either an executive appointment or an

appointment as director, and zero if we find no evidence on any employment. We estimate a Probit regression with this variable as the dependent variable. We partition the sample based on the nature of turnover (that is, forced or voluntary), and report the results in Columns 1 and 2 of Table 12. The variable of interest is CUT, which indicates the departing CEO leaves the firm when the industry in which the firm operates experiences a substantial tariff reduction. The significant negative coefficient of CUT for the forced turnover sample suggests that departing CEOs are less likely to obtain an executive or board position if the time of their departure coincides with the change of competition. However, CUT is insignificant for voluntary turnovers. This further validates our turnover classification.

We next examine those CEO departures which result in executive positions. We collect information on executive pay, firm size and industry of the new firm when departing CEOs get executives jobs. We first ask how more intense industry competition affects the probability of CEOs receiving a higher pay or working for a bigger firm. The Probit regression is presented in Column 4 of Table 12. The dependent variable, Promotion, is a dummy that equals to one if departing CEOs receive a higher pay in the new firm or works for a larger firm (or both), and zero otherwise. The coefficient of CUT is -0.28, significant at the 10% level. Holding everything at the mean, we find that the probability of finding a job that improves on the current one in at least one dimension drops from 22% to 15% if CEOs leave when the competition intensifies.

Finally, we examine whether departing CEOs tend to escape from the affected competitive environment by choosing to work for a new firm in a different industry, consistent with a "quiet life" story. To do so, we compare the 4-digit SIC code of the new firm with that of the current firm. We then create a dummy variable, "Same Industry" that equals to one if two SIC codes are the same. The Probit regression in Column 5 in table 12 suggests that departing CEOs are less likely to work in the same industry if they leave after the tariff reduction. This result is consistent with the quiet life hypothesis but inconsistent with the notion that greater competition helps the more capable CEOs in the industry showcase their ability, since in this case, one would presume that their abilities would be more valued in the same industry.

6. Robustness Checks

6.1 Potential endogeneity of tariff cuts

A potential challenge for our identification strategy is that trade policy results from the interactions between politicians and the corporate sector. As a result, politicians could modify import tariffs based on certain industry characteristics that are related to firms' investment prospects. For instance, politicians could lower tariffs in declining industries which exhibit low expected growth rates or poor performance outcomes. As such, trade protection may be granted to or removed in industries featuring specific growth, investment, or performance patterns. To assess the validity of this concern, we follow Fresard (2010) and estimate several regressions linking tariff reductions to industries' (mean and median) characteristics related to performance and growth opportunities. To be consistent with our main results, we use all the firms from Compustat with available data that can be matched to the tariff data. We expect industry characteristics to have no statistical power in predicting the dynamics of import tariffs. Results are presented in Table 2 in Appendix B. Columns (1) and (2) report the results of OLS regressions of the annual change in industry-level tariffs on several one-year lagged industry-level variables, as well as year and industry fixed effects. Reassuringly, we find no evidence that average and median industry characteristics can predict the dynamics of trade policy. In columns (3) and (4), we further examine whether industry-level variables can predict the large tariff reduction. To do so, we regress an indicator variable that identifies large tariff reductions on lagged industry-level predictors. Again, we note no systematic ability to predict the occurrence of large tariff reductions. These findings attenuate the concern that tariff reductions are related to industry characteristics that could potentially explain our findings.

In general, tariff agreements can be bilateral or multilateral, with the latter involving more than two countries negotiating over a large variety of products often in various industries. The multi-country-industry dimension of such agreements limits the vulnerability of government officials to political pressures of interested parties. Furthermore, the participation of international institutions imposes rules and formal obligations that restrict the influence of certain industries or corporations. For that reason,

these reductions can be viewed as relatively more exogenous than reductions resulting from bilateral agreements. We make two attempts to separate out the multilateral agree agreements. First, The General Agreement on Tariffs and Trade (GATT) initiated a multilateral trade negotiation with 125 countries signing the agreement in 1993. Shortly thereafter, the World Trade Organization (WTO) was established as the successor to the GATT. Accordingly, we separate the sample into pre- and post- WTO periods, with the latter more likely to involve the multilateral tariff agreements as a result of GATT and WTO. The sub-period analysis is presented in the first two columns in Table 13. The effect of tariff reduction on turnover and turnover-performance sensitivity is much more significant in the post WTO period than the pre WTO period. As our sample period starts in 1992, we have a limited number of years for pre WTO period. To get a more balanced subperiod analysis while maintaining the exogenous nature of multilateral agreement, we calculate the number of industries that are affected by the substantial tariff reduction in each year. We then consider the years that have the number of affected industries above the sample mean as the period in which the tariff agreement is less subject to political pressure or special interest (we call it high contagion group). The results are presented in the last two columns of Table 13. The results in both panels suggest that tariff reduction has a much stronger effect when there are more industries are affected.

6.2 Tariff cuts and firm diversification

The extent to which tariff reduction affects the firm profit might depend on firms' exposure to the affected product markets. Firms with all the products in a single industry may be affected most if such industry faces a dramatic change in competition from foreign firms. On the other hand, well-diversified firms or firms with multiple business lines might be able to deal better with foreign competition if some of their products are not affected. Hence, we collect segment data from Compustat Business Segment files and separate the single segment firms from multiple segment ones. Similarly, we also separate firms based on their degree of concentration in segment sales. We consider firms with their Herfindahl index of segment sales in the year before the tariff change above the mean of all firms in the same industry as less diversified group. We present the subgroup analysis in Table 14. We find that tariff reduction leads to more CEO turnovers and higher turnover-performance sensitivity in single segment firms or less

diversified group. Moreover, the difference between the more and less diversified groups is statistically significant. In the last column of Table 14, we repeat our main analysis for the exporting firms. While we expect the tariff reduction to have much weaker effect on exporting firms as it is quite likely that exporting firms can also benefit from the tariff change through their exporting business, the result, however, suggests that exporting firms also experience higher CEO turnover, but not higher turnover-performance sensitivity when the competition environment changes.

7. Conclusions

Apart from increasing social welfare via an increase in the consumers' surplus that more than offsets the reduction is producers' surplus, one of the benefits of greater product market competition is supposed to be that it keeps companies on their toes and reduces slack and improves performance efficiency. There is surprisingly little evidence, however, on the latter. In this paper, we examine how managerial retention decisions respond to greater competition intensity – in particular, whether competition weeds out inefficient management, and whether there are any other consequences of competition in terms of how firms and managers are reassigned across firms in the economy. To do so, we focus on industry-level major tariff cuts for U.S. producers, which represent exogenous shocks to the competitive environment in these industries. Such an approach has major advantages over industry-level concentration measures such as the Herfindahl-Hirschman Index (HHI), as discussed above.

We do find strong evidence consistent with increased competition weeding out less efficient management. We find that managerial turnover, and the performance-sensitivity of turnover, increases for firms that have lower productivity as measured by TFP and other measures, but not for firms that have higher productivity. We find direct evidence of increased board proactivity in that the likelihood of turnovers classified as "forced", and the performance-sensitivity of such turnovers, also increases. When we examine how corporate governance quality affects turnover and turnover-performance sensitivity, we find strong evidence the boards of firms with weaker governance become more proactive and both managerial turnover and the sensitivity of turnover to performance increases for such firms. This is

consistent with the notion that under normal times, weak boards tolerate slack and inefficiency but become more proactive when competition threatens firm survival and the reputation of board members. Finally, we find that for forced turnovers, performance improves on a number of dimensions after the turnover, relative of a matched sample of firms with similar propensity of turnover, but where no turnover actually occurs. This is consistent with boards becoming more proactive and implementing changes (CEO firing being part of that process) in response to more intense competition that improve firm performance.

We find that the likelihood of voluntary turnovers and the performance-sensitivity of such turnovers also increase following tariff cuts. We find especially strong evidence of such departures for financially constrained firms, firms with greater information asymmetry that are likely more vulnerable to predation by rivals, and firms with smaller market share. We argue that such departures could be driven by managers' preference for jobs at industries where competition is less fierce and they do not have to work as hard, and also with efficient "re-assignment" of managers to firms where their marginal productivities are higher. We do not, however, find any evidence of performance deterioration after such departures – in fact, we find weak evidence of some performance improvement, which could reflect the fact that underperforming managers quit voluntarily (or some forced turnovers are mis-classified as voluntary turnovers). Thus, overall, our evidence consistent with the notion that competition weeds out non-performing managers and pushes firms towards retention policies that are shareholder value maximizing.

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Table 1: Summary Statistics

The sample consists all firms in manufacturing industries (2000-3999 SIC range) that also have data available on ExecuComp database between 1992 and 2006. Tariff is the percentage rate as the duties collected by U.S. Customs divided by the Free-on-Board value of imports. Forced and voluntary turnovers are defined as in Parrino, Sias and Starks (2003). All other variables in Panel A are defined in Appendix A. Panel B summarizes CEO turnover for our sample firms between 1992 and 2005. Total turnover is the sum of forced and voluntary turnover. Under each turnover type, we report the number (the first column) and the unconditional probability (in percentage).

Panel A: Descriptive statistics

Variable	N	Mean	S.D.	0.25	0.50	0.75
Tariff	6410	1.22	2.11	0.001	0.434	1.586
ROA	6410	0.012	0.325	0.009	0.052	0.092
RET	6262	0.188	0.603	-0.165	0.099	0.379
Salechg	6460	0.171	0.976	-0.003	0.085	0.213
Assets	6385	6.944	1.631	5.838	6.81	7.914
Q	6363	2.327	2.052	1.298	1.737	2.579
Age	6050	56.178	7.732	51	56	61
Volatility	6263	0.469	0.261	0.289	0.396	0.593

Panel B: CEO Turnover by year

Year	Total Turnover		Forced Turnover		Voluntary Turnover	
	#	%	#	%	#	%
1993	18	5.76	5	1.45	13	4.31
1994	52	11.56	19	4.36	33	7.20
1995	59	12.46	18	3.96	41	8.50
1996	70	13.61	20	4.31	50	9.30
1997	89	16.78	32	6.88	57	9.90
1998	95	17.52	33	6.90	62	10.62
1999	123	20.05	38	7.77	85	12.28
2000	94	17.90	27	5.51	67	12.39
2001	67	11.79	22	4.67	45	7.12
2002	69	13.06	18	3.88	51	9.18
2003	64	12.55	20	4.22	44	8.33
2004	86	15.18	18	3.90	68	11.28
2005	88	15.42	11	2.46	77	12.96
1993-2005	974	14.13	281	4.64	693	9.49

Table 2: Tariff Cuts and CEO Turnover

This Table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t under normal hiring and firing event and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. Before is dummy variable equal to one if one or two years before a specific industry experience a substantial tariff reduction. All other variables are defined in Appendix A. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

VARIABLES	(1) Tturnover	(2) Turnover	(3) Tturnover	(4) tTurnover	(5) tTurnover
CUT_POST5		0.199***	0.231***	0.115	0.101
		(0.062)	(0.073)	(0.071)	(0.084)
ROA	-0.142**	-0.206*	-0.180	-0.162	-0.075
	(0.066)	(0.124)	(0.131)	(0.116)	(0.151)
CUT_POST5*ROA				-0.469	-0.752**
				(0.314)	(0.341)
RET	-0.150***	-0.144**	-0.206***	-0.125**	-0.193**
	(0.057)	(0.061)	(0.076)	(0.064)	(0.081)
CUT_POST5* RET				-0.005	0.173
				(0.130)	(0.147)
Salechg	-0.332***	-0.314***	-0.222*	-0.316***	-0.252*
	(0.106)	(0.113)	(0.123)	(0.103)	(0.135)
Assets	0.030	0.034	0.074***	0.029	0.074***
	(0.018)	(0.021)	(0.024)	(0.019)	(0.024)
Q	-0.032*	-0.030	-0.013	-0.041**	-0.021
	(0.019)	(0.021)	(0.024)	(0.021)	(0.025)
Age_dummy	0.904***	0.861***	1.017***	0.861***	0.999***
	(0.051)	(0.056)	(0.065)	(0.052)	(0.066)
Volatility	0.348***	0.472***	0.538***	0.419***	0.518***
	(0.110)	(0.150)	(0.178)	(0.134)	(0.194)
Before			0.179		0.078
			(0.132)		(0.151)
Before* ROA					-0.694
					(1.506)
Before* RET					-0.178
					(0.386)
Constant	-1.669***	-1.782***	-1.649***	-1.647***	-1.667***
	(0.247)	(0.279)	(0.596)	(0.259)	(0.465)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.13	0.13	0.16	0.13	0.14
Observations	4,288	4,288	4,288	4,288	4,288

Table 3: Tariff Cuts, Product Substitutability, and CEO Turnover

This Table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t, and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. Similarity is the firm level total similarity index based on Hoberg and Phillips (2011). The index is based on comparing product descriptions in firm's 10-K annual filing with cosine similarity method. R&D is research and development expenses scaled by total assets. For each proxy and for each year, all firms in the same industry (2-digit SIC codes) are divided into two subgroups based on whether the proxy in the year before the tariff cut is above (high) or below (low) the industry average. All other variables are defined in Appendix A. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) Similarity	(2) Similarity	(3) R&D	(4) R&D
	Low	High	High	Low
CUT_POST5	0.047	0.379***	0.111	0.383***
	(0.096)	(0.118)	(0.128)	(0.129)
ROA	-0.281	-0.285	-0.209	-0.232
	(0.180)	(0.144)	(0.169)	(0.196)
RET	-0.161**	-0.317***	-0.207	-0.187*
	(0.082)	(0.111)	(0.202)	(0.107)
Before	0.191	0.146	0.019	0.471
	(0.162)	(0.227)	(0.214)	(0.348)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.01**		0.06*
Control Variables	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Pseudo-R^2	0.16	0.20	0.17	0.22
Observations	2,187	1,885	1,817	1,753

Panel B: Turnover-performance sensitivity

VARIABLES	(1) Similarity	(2) Similarity	(3) R&D	(4) R&D
	Low	High	High	Low
CUT_POST5	0.070	0.191	0.105	0.374**
	(0.100)	(0.156)	(0.133)	(0.151)
ROA	0.208	-0.487*	-0.178	-0.044
	(0.184)	(0.249)	(0.218)	(0.182)
CUT_POST5* ROA (β_1)	-0.492	-0.751*	-0.529	-1.604***
	(0.451)	(0.392)	(0.367)	(0.327)
RET	-0.200**	-0.302**	-0.179	-0.254**
	(0.097)	(0.120)	(0.111)	(0.126)
CUT_POST5* RET (β_2)	0.211	-0.264**	0.096	-0.351**
	(0.166)	(0.123)	(0.219)	(0.139)
Before	0.174	-0.207	-0.032	-0.210
	(0.198)	(0.271)	(0.272)	(0.281)
Before* ROA	1.151	-3.629	8.165	-4.688*
	(2.084)	(2.691)	(5.007)	(2.397)
Before* RET	-0.780	0.241	-0.588	0.100
	(0.676)	(0.305)	(0.995)	(0.715)
Wald χ2 Test for β_1 (p-value)		0.18		0.09*
Wald χ2 Test for β_2 (p-value)		0.07*		0.02**
Control Variables	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Pseudo-R^2	0.16	0.20	0.17	0.23
Observations	2,187	1,885	1,817	1,753

Table 4: Tariff Cuts and Voluntary/Forced Turnovers

This table reports the results of multinomial Probit regression where the dependent variable equals to one if CEO departs voluntarily in year t, two if CEO is forced to depart in year t, and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. The definition of voluntary and forced turnover is based on Parrino, Sias and Starks (2003), with the additional filter that departures of CEOs before age 60 for whom we cannot find any record of another position, including directorial appointments, are classified as forced. All other variables are defined in Appendix. Column 1 and 3 show the results when the dependent variable is one (voluntary turnover). Column 2 and 4 show the results when the dependent variable is two (forced turnover). Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

VARIABLES	(1) Voluntary	(2) Forced	(3) Voluntary	(4) Forced
CUT_POST5	0.363***	0.503**	0.267*	0.195
	(0.140)	(0.200)	(0.160)	(0.240)
ROA	-0.256	-0.327*	-0.022	-0.232
	(0.253)	(0.171)	(0.301)	(0.296)
CUT_POST5* ROA			-0.999	-1.425**
			(0.654)	(0.586)
RET	-0.287*	-1.006***	-0.149	-0.942***
	(0.156)	(0.307)	(0.171)	(0.309)
CUT_POST5*RET			0.280	-0.811**
			(0.283)	(0.309)
Before	0.051	0.302	-0.176	-0.540
	(0.271)	(0.336)	(0.314)	(0.603)
Before*ROA			4.118	-4.438
			(4.138)	(2.883)
Before*RET			-0.041	-1.588
			(0.631)	(1.635)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Pseudo-R^2	0.14	0.14	0.16	0.16
Observations	4,288	4,288	4,288	4,288

Table 5: Tariff Cuts, Past Performance, and CEO Turnover

This table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. All other variables are defined in Appendix. Column 1(2) include firms with past three-year average Return on Assets (ROA) above (below) the mean of all firms in the industry with the same 2-digit SIC codes. Column 3(4) include firms with past three-year buy-and-hold stock return (RET) above (below) the mean of all firms in the industry with the same 2-digit SIC codes. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) ROA	(2) ROA	(3) RET	(4) RET
	Low	High	Low	High
CUT_POST5	0.183*	0.283***	0.182**	0.251**
	(0.098)	(0.104)	(0.082)	(0.110)
ROA	-0.002	-0.181	-0.061	0.045
	(0.140)	(0.840)	(0.150)	(0.380)
RET	-0.322***	-0.187*	-1.227***	0.061
	(0.102)	(0.109)	(0.294)	(0.107)
Before	0.171	0.120	0.385*	0.121
	(0.185)	(0.194)	(0.215)	(0.202)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.41		0.32
Control Variables	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Pseudo-R^2	0.18	0.16	0.22	0.15
Observations	1,529	2,044	1,291	2,194

Panel B: Turnover-performance sensitivity

VARIABLES	(1) ROA	(2) ROA	(3) RET	(4) RET
	Low	High	Low	High
CUT_POST5	0.365	0.287	0.322*	0.264
	(0.235)	(0.192)	(0.192)	(0.163)
ROA	0.252	-0.054	-0.127	0.424
	(0.974)	(0.193)	(0.153)	(0.485)
CUT_POST5*Industry-adjusted ROA (β_1)	-0.993*	-0.444	-1.200*	-0.545
	(0.578)	(0.407)	(0.691)	(0.359)
RET	-0.255**	-0.125	-0.376*	-0.025
	(0.122)	(0.126)	(0.218)	(0.129)
CUT_POST5*RET (β_2)	-0.398**	-0.110	-0.771**	0.175
	(0.195)	(0.252)	(0.388)	(0.185)
Before	-0.632*	0.041	-0.456	0.011
	(0.347)	(0.247)	(0.401)	(0.242)
Before* ROA	-0.108	2.265	-0.251	0.612
	(2.026)	(3.780)	(1.955)	(3.234)
Before* RET	-0.566	-0.052	-2.012*	-0.017
	(1.020)	(0.293)	(1.182)	(0.284)
Wald χ2 Test for β_1 (p-value)		0.19		0.29
Wald χ2 Test for β_2 (p-value)		0.03**		0.15
Control Variables	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Pseudo-R^2	0.24	0.16	0.17	0.17
Observations	1,529	2,044	1,291	2,194

Table 6: Tariff Cuts, Firm Productivity, and CEO Turnover

This Table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t, and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. Tfp is total factor productivity, measured as the residual from the regression of the logarithm of net sales on the logarithm of net property, plant and equipment and the logarithm of the number of employees. Sales_emp is the ratio of firm's sales divided by the number of employees. NI_emp is the ratio of firm's net income divided by the number of employees. For each proxy, all firms in the same industry (2-digit SIC codes) are divided into two subgroups based on whether the proxy in the year before the tariff cut is above (high) or below (low) the industry average. All other variables are defined in Appendix A. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) TFP	(2) TFP	(3) Sale_emp	(4) Sale_emp	(5) NI_emp	(6) NI_emp
	Low	High	Low	High	Low	High
CUT_POST5	0.201*	0.105	0.250**	0.029	0.180*	0.033
	(0.116)	(0.130)	(0.116)	(0.112)	(0.109)	(0.120)
ROA	-0.048	-0.111	-0.254*	-0.414	-0.170	-0.566
	(0.268)	(0.146)	(0.142)	(0.401)	(0.147)	(0.745)
RET	-0.198*	-0.225**	-0.083	-0.324***	-0.207**	-0.192**
	-0.102	(0.089)	(0.101)	(0.096)	(0.093)	(0.097)
Before	0.209	-0.211	0.215	-0.141	0.092	0.240
	(0.238)	(0.215)	(0.172)	(0.197)	(0.177)	(0.187)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.09*		0.00***		0.01**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.16	0.20	0.19	0.16	0.18	0.15
Observations	1,965	2,316	1,899	2,350	2,068	2,180

Panel B: Turnover-performance sensitivity

VARIABLES	(1) TFP	(2) TFP	(3) Sale_emp	(4) Sale_emp	(5) NI_emp	(6) NI_emp
	Low	High	Low	High	Low	High
CUT_POST5	0.183	0.148	0.201*	-0.003	0.160	0.009
	(0.134)	(0.119)	(0.117)	(0.134)	(0.123)	(0.150)
ROA	0.427	0.001	0.149	-0.187	0.186	-0.597
	(0.394)	(0.185)	(0.238)	(0.169)	(0.202)	(0.656)
CUT_POST5*ROA (β_1)	-1.950**	-0.721**	-1.490*	-0.616	-0.582*	-0.272
	(0.842)	(0.342)	(0.850)	(0.378)	(0.331)	(1.119)
RET	-0.238*	-0.246**	-0.145	-0.299**	-0.343***	-0.203**
	(0.122)	(0.107)	(0.097)	(0.128)	(0.112)	(0.100)
CUT_POST5*RET (β_2)	-0.190*	0.088	-0.290*	-0.066	-0.313	-0.233
	(0.107)	(0.186)	(0.167)	(0.220)	(0.204)	(0.186)
Before	-0.480	0.225	0.244	-0.118	0.046	0.072
	(0.426)	(0.242)	(0.209)	(0.236)	(0.266)	(0.243)
Before* ROA	-5.491	1.365	-0.785	3.035	3.215	-2.519
	(6.815)	(2.439)	(1.641)	(2.811)	(3.809)	(3.313)
Before* RET	-0.159	0.178	-0.559	0.046	-1.286	0.099
	(0.737)	(0.310)	(0.607)	(0.467)	(0.972)	(0.429)
Wald χ2 Test for β_1 (p-value)		0.30		0.28		0.01**
Wald χ2 Test for β_2 (p-value)		0.05**		0.02**		0.47
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.17	0.20	0.17	0.20	0.20	0.16
Observations	1,965	2,316	1,899	2,350	2,068	2,180

Table 7: Tariff Cuts, Corporate Governance, and CEO Turnover

This Table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t, and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. G-Index is the governance index based on Gompers, Ishii and Metrick (2003). E-Index is the entrenchment index based on Bebchuk, Cohen and Ferrell (2009). Indep. is the proportion of independent directors on the board. Inst. measures the sum of ownership of all institutional investors who hold the firm stock. For each proxy, all firms in the same industry (2-digit SIC codes) are divided into two subgroups based on whether the proxy in the year before tariff cut is above (high) or below (low) the industry average. All other variables are defined in Appendix A. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) G-Index	(2) G-Index	(3) E-Index	(4) E-Index	(5) Indep.	(6) Indep.	(7) Inst.	(8) Inst.
	High	Low	High	Low	Low	High	Low	High
CUT_POST5	0.091	0.094	0.173*	-0.181	0.350**	0.096	0.254**	0.010
	(0.095)	(0.148)	(0.089)	(0.203)	(0.126)	(0.105)	(0.114)	(0.117)
ROA	-0.450***	-0.262	-0.347***	-0.291	0.077	-0.409***	-0.292**	-0.311
	(0.141)	(0.172)	(0.131)	(0.296)	(0.196)	(0.146)	(0.149)	(0.269)
RET	-0.144*	-0.342***	-0.206***	-0.280***	-0.183*	-0.218**	-0.071	-0.367***
	(0.082)	(0.117)	(0.074)	(0.073)	(0.109)	(0.085)	(0.087)	(0.104)
Before	0.172	0.171	0.035	0.183	-0.008	0.262	-0.090	0.447
	(0.239)	(0.156)	(0.296)	(0.147)	(0.223)	(0.162)	(0.185)	(0.386)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.22		0.08*		0.08*		0.00***
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.18	0.18	0.20	0.17	0.17	0.18	0.18	0.18
Observations	2,765	1,520	2,388	1,897	1,411	2,873	2,007	2,280

Panel B: Turnover-performance sensitivity

VARIABLES	(1) G-Index High	(2) G-Index Low	(3) E-Index High	(4) E-Index Low	(5) Indep. Low	(6) Indep. High	(7) Inst. Low	(8) Inst. High
CUT_POST5	0.188	0.102	0.180**	-0.094	0.178	0.106	0.259**	0.013
	(0.155)	(0.099)	(0.091)	(0.209)	(0.131)	(0.109)	(0.114)	(0.128)
ROA	-0.443*	-0.320**	0.569	-0.276*	0.549	-0.401**	-0.235	0.307
	(0.228)	(0.162)	(0.493)	(0.158)	(0.416)	(0.186)	(0.171)	(0.397)
CUT_POST5*ROA (β_1)	-1.193*	-0.531	-1.099*	-0.440	-1.145**	-0.185	-0.686*	-0.877
	(0.630)	(0.361)	(0.575)	(0.330)	(0.455)	(0.329)	(0.392)	(0.609)
RET	-0.554***	-0.089	-0.519**	-0.200**	-0.385***	-0.159*	-0.223**	-0.246**
	(0.170)	(0.091)	(0.217)	(0.085)	(0.142)	(0.095)	(0.105)	(0.117)
CUT_POST5*RET (β_2)	-0.528**	0.101	-0.800***	0.163	-0.536**	0.021	-0.602***	-0.284
	(0.252)	(0.176)	(0.306)	(0.155)	(0.219)	(0.189)	(0.168)	(0.231)
Before	0.042	0.017	-0.433	0.091	-0.299	0.097	-0.128	0.267
	(0.251)	(0.194)	(0.461)	(0.169)	(0.291)	(0.198)	(0.205)	(0.230)
Before* ROA	-1.476	-0.752	-1.950	-0.159	-3.651	0.314	1.500	-2.550
	(2.764)	(1.762)	(2.617)	(1.925)	(4.802)	(1.873)	(2.856)	(2.393)
Before* RET	0.654	-0.670	-2.006	-0.023	0.787*	-0.824	-0.363	0.085
	(0.422)	(0.672)	(1.546)	(0.432)	(0.473)	(0.681)	(0.537)	(0.462)
Wald χ2 Test for β_1(p-value)		0.26		0.23		0.03**		0.27
Wald χ2 Test for β_2(p-value)		0.06*		0.04**		0.00***		0.09*
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.22	0.17	0.22	0.17	0.19	0.17	0.19	0.18
Observations	1,520	2,765	1,897	2,388	1,411	2,873	2,007	2,280

Table 8: Tariff Cuts, Financial Constraints, and CEO Turnover

This Table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. WW index is based on Whited Wu (2006). Size is firm size measured by market value of firm equity. Age is firm age measured by the number of years since the firm joined CRSP_Compustat merged database. Div. is a dummy variable that equals to one if the sum of cash dividends for common and preferred stocks is positive, and zero otherwise. Rating is a dummy variable that equals to one if a firm has an S&P rating for long term debt, and zero otherwise. For each proxy, all firms in the same industry (2-digit SIC codes) are divided into two subgroups based on whether the proxy in the year before the tariff cut is above (high) or below (low) the industry average or whether the dummy variable is one or zero. All other variables are defined in Appendix A. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) WW	(2) WW	(3) Size	(4) Size	(5) Age	(6) Age	(7) Div.	(8 Div.	(9) Rating	(10) Rating
	High	Low	Low	High	Low	High	=0	=1	=0	=1
CUT_POST5	0.243*	-0.048	0.250**	-0.061	0.389***	-0.073	0.307**	0.060	0.330***	-0.181
	(0.127)	(0.124)	(0.103)	(0.129)	(0.125)	(0.103)	(0.139)	(0.096)	(0.108)	(0.128)
ROA	-0.243	-0.193	-0.177	-0.356*	-0.262*	-0.051	-0.191	-0.071	-0.151	-1.357***
	(0.196)	(0.164)	(0.148)	(0.194)	(0.145)	(0.280)	(0.134)	(0.258)	(0.127)	(0.373)
RET	-0.248**	-0.139	-0.243***	-0.170	-0.215**	-0.237**	-0.183**	-0.237**	-0.219***	-0.311**
	(0.096)	(0.094)	(0.084)	(0.107)	(0.091)	(0.102)	(0.084)	(0.113)	(0.078)	(0.137)
Before	0.003	0.255	0.029	0.311	-0.013	0.167	0.354	0.086	0.250	0.030
	(0.212)	(0.197)	(0.156)	(0.225)	(0.208)	(0.171)	(0.276)	(0.154)	(0.184)	(0.198)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.03**		0.02**		0.04**		0.06*		0.01**
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.20	0.17	0.17	0.18	0.17	0.18	0.15	0.19	0.16	0.22
Observations	1,876	1,888	2,013	2,273	2,115	2,173	1,879	2,369	2,924	1,322

Panel B: Turnover-performance sensitivity

VARIABLES	(1) WW	(2) WW	(3) Size	(4) Size	(5) Age	(6) Age	(7) Div.	(8 Div.	(9) Rating	(10) Rating
	High	Low	Low	High	Low	High	=0	=1	=0	=1
CUT_POST5	0.258*	0.018	0.250**	-0.043	0.356***	-0.007	0.224	0.154	0.301***	-0.130
	(0.134)	(0.131)	(0.107)	(0.130)	(0.129)	(0.108)	(0.148)	(0.103)	(0.111)	(0.142)
ROA	-0.118	-0.073	-0.035	-0.322	-0.173	-0.274	-0.136	-0.404	-0.062	-0.396
	(0.198)	(0.175)	(0.177)	(0.220)	(0.156)	(0.454)	(0.152)	(0.381)	(0.153)	(1.124)
CUT_POST5*ROA (β_1)	-1.307***	-0.436	-0.827**	-0.218	-0.498*	-0.268	-0.927**	-0.205	-0.680*	-2.676
	(0.283)	(0.349)	(0.368)	(0.427)	(0.278)	(0.621)	(0.449)	(0.492)	(0.356)	(1.912)
RET	-0.264**	-0.182*	-0.250***	-0.198	-0.217**	-0.261**	-0.173*	-0.304**	-0.222**	-0.474***
	(0.110)	(0.102)	(0.097)	(0.128)	(0.110)	(0.110)	(0.098)	(0.124)	(0.092)	(0.164)
CUT_POST5*RET (β_2)	-0.184***	0.201	-0.232	0.246	-0.189	-0.174	-0.411**	0.127	-0.289*	0.212
	(0.030)	(0.197)	(0.169)	(0.227)	(0.172)	(0.231)	(0.181)	(0.170)	(0.152)	(0.295)
Before	0.244	-0.091	0.083	-0.094	0.020	-0.108	-0.390	-0.008	0.185	-0.178
	(0.247)	(0.216)	(0.194)	(0.275)	(0.266)	(0.196)	(0.653)	(0.168)	(0.226)	(0.227)
Before* ROA	-2.198	2.359	-1.162	-1.400	-1.858	1.678	-2.259	1.859	-1.446	4.477
	(1.795)	(2.249)	(1.707)	(2.802)	(2.045)	(3.187)	(3.178)	(2.506)	(1.469)	(3.483)
Before* RET	-0.168	-0.027	-0.456	0.401	-0.826	0.439	-3.884	-0.022	-1.079*	0.710
	(0.519)	(0.482)	(0.465)	(0.975)	(0.862)	(0.669)	(3.247)	(0.485)	(0.570)	(0.626)
Wald χ2 Test for β_1 (p-value)		0.06*		0.04**		0.04**		0.03**		0.24
Wald χ2 Test for β_2 (p-value)		0.01**		0.26		0.23		0.08*		0.09*
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.20	0.16	0.18	0.17	0.17	0.18	0.14	0.19	0.16	0.23
Observations	1,876	1,888	2,013	2,273	2,115	2,173	1,879	2,369	2,924	1,322

Table 9: Tariff Cuts, Information Environment, and CEO Turnover

This Table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t, and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. Ret Vol is the standard deviation of daily returns during the year before the tariff cut. Accuracy is analysts' earnings forecast error measured by the average of the difference between realized earnings and analysts' earnings forecast during the year before the tariff cut. E_disper is the standard deviation of analysts' earnings forecast errors scaled by actual reported earnings during the year before the tariff cut. For each proxy, all firms in the same industry (2-digit SIC codes) are divided into two subgroups based on whether the proxy in the year before the tariff cut is above (high) or below (low) the industry average. All other variables are defined in Appendix A. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) Ret Vol	(2) Ret Vol	(3) Accuracy	(4) Accuracy	(5) E_disper	(6) E_disper
	Low	High	High	Low	Low	High
CUT_POST5	0.002	0.258**	-0.021	0.308**	0.061	0.262*
	(0.113)	(0.131)	(0.101)	(0.134)	(0.108)	(0.151)
ROA	-1.716***	-0.024	0.055	-0.361**	-0.181	-0.217
	(0.444)	(0.136)	(0.164)	(0.181)	(0.183)	(0.177)
RET	-0.295***	-0.238***	-0.252***	-0.263**	-0.350***	-0.162*
	(0.105)	(0.086)	(0.089)	(0.109)	(0.101)	(0.093)
Before	0.016	0.087	0.294*	-0.072	0.116	0.256
	(0.209)	(0.199)	(0.159)	(0.225)	(0.180)	(0.189)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.00***		0.00***		0.08*
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.17	0.20	0.16	0.20	0.16	0.19
Observations	1,753	1,817	2,021	2,261	1,970	2,312

Panel B: Turnover-performance sensitivity

VARIABLES	(1) Ret Vol	(2) Ret Vol	(3) Accuracy	(4) Accuracy	(5) E_disper	(6) E_disper
	Low	High	High	Low	Low	High
CUT_POST5	-0.000	0.245*	0.052	0.304**	0.097	0.164
	(0.122)	(0.139)	(0.105)	(0.145)	(0.114)	(0.127)
ROA	-1.217**	0.058	0.200	-0.322	0.004	-0.233
	(0.497)	(0.169)	(0.218)	(0.223)	(0.185)	(0.232)
CUT_POST5*ROA (β_1)	-1.886	-0.591*	-0.127	-1.047*	-0.126	-1.249*
	(1.173)	(0.342)	(0.388)	(0.563)	(0.327)	(0.654)
RET	-0.215*	-0.260**	-0.250**	-0.286**	-0.393***	-0.248**
	(0.115)	(0.109)	(0.101)	(0.141)	(0.113)	(0.106)
CUT_POST5*RET (β_2)	-0.160	-0.368**	-0.248	-0.256**	0.110	-0.367*
	(0.231)	(0.172)	(0.290)	(0.104)	(0.201)	(0.199)
Before	0.077	0.080	0.179	-0.261	0.147	-0.194
	(0.216)	(0.237)	(0.176)	(0.388)	(0.196)	(0.261)
Before* ROA	1.230	-0.774	-0.060	-3.480	2.024	-4.348
	(2.637)	(2.130)	(1.751)	(3.056)	(1.922)	(2.783)
Before* RET	0.241	-0.441	-0.058	-1.003	-0.147	-0.158
	(0.841)	(0.501)	(0.363)	(1.072)	(0.455)	(0.506)
Wald χ2 Test for β_1 (p-value)		0.31		0.07*		0.03**
Wald χ2 Test for β_2 (p-value)		0.08*		0.09*		0.07*
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.17	0.20	0.16	0.20	0.16	0.19
Observations	2,013	2,273	2,021	2,261	1,970	2,312

Table 10: CEO turnover, product market competition and market share

This Table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t, and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. Sales_mk is the market share of firm's sales based on the industry total sales of all firms with the same 2-digit SIC codes. AT_mk is the market share of firm's assets based on the industry total assets of all firms with the same 2-digit SIC codes. NI_mk is the market share of firm's net income based on the industry total net income of all firms with the same 2-digit SIC codes. For each proxy, all firms in the same industry (2-digit SIC codes) are divided into two subgroups based on whether the proxy in the year before the tariff cut is above (high) or below (low) the industry average. All other variables are defined in Appendix A. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) Sale_mk	(2) Sale_mk	(3) AT_mk	(4) AT_mk	(5) NI_mk	(6) NI_mk
	Low	High	Low	High	Low	High
CUT_POST5	0.163**	0.043	0.218*	0.028	0.208**	0.059
	(0.067)	(0.108)	(0.118)	(0.112)	(0.097)	(0.097)
ROA	-0.100	-0.398*	-0.156	-0.334*	-0.212	-0.291*
	(0.156)	(0.217)	(0.166)	(0.194)	(0.146)	(0.169)
RET	-0.267***	-0.205**	-0.215**	-0.224**	-0.074	-0.170*
	(0.099)	(0.097)	(0.096)	(0.095)	(0.070)	(0.091)
Before	0.248	-0.062	0.201	-0.272	0.291*	-0.045
	(0.170)	(0.202)	(0.171)	(0.215)	(0.173)	(0.206)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.01**		0.00***		0.06*
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.18	0.17	0.19	0.17	0.19	0.16
Observations	2,128	2,125	2,111	2,138	2,161	2,090

Panel B: Turnover-performance sensitivity

VARIABLES	(1) Sale_mk	(2) Sale_mk	(3) AT_mk	(4) AT_mk	(5) NI_mk	(6) NI_mk
	Low	High	Low	High	Low	High
CUT_POST5	0.104	0.186	0.256**	0.070	0.193	0.058
	(0.111)	(0.125)	(0.123)	(0.112)	(0.121)	(0.124)
ROA	-0.226	-0.072	-0.188	-0.108	-0.271	-0.075
	(0.178)	(0.193)	(0.174)	(0.208)	(0.191)	(0.214)
CUT_POST5*ROA (β_1)	-1.664***	-0.277	-1.606***	-0.289	-2.339*	-0.462
	(0.313)	(0.325)	(0.318)	(0.336)	(1.374)	(0.358)
RET	-0.268**	-0.214**	-0.285**	-0.183	-0.276**	-0.137
	(0.119)	(0.108)	(0.112)	(0.112)	(0.127)	(0.101)
CUT_POST5*RET (β_2)	-0.348*	-0.079	-0.262	-0.141	-0.445**	-0.013
	(0.207)	(0.206)	(0.205)	(0.187)	(0.202)	(0.197)
Before	0.175	-0.127	0.112	-0.167	0.159	0.061
	(0.211)	(0.221)	(0.202)	(0.236)	(0.212)	(0.233)
Before* ROA	-0.352	-2.525	-2.010	0.278	0.961	-3.242
	(1.479)	(2.967)	(1.571)	(2.598)	(2.059)	(3.441)
Before* RET	-0.550	0.190	-0.407	0.137	-0.603	0.159
	(0.544)	(0.563)	(0.443)	(0.590)	(0.554)	(0.519)
Wald χ2 Test for β_1 (p-value)		0.04**		0.05**		0.25
Wald χ2 Test for β_2 (p-value)		0.04**		0.19		0.00***
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.19	0.18	0.19	0.17	0.19	0.16
Observations	2,128	2,125	2,111	2,138	2,161	2,090

Table 11: The effect of CEO turnover on corporate performance after tariff reduction

This table presents the difference-in-differences estimates for performance variables. The sample includes all firms experiencing substantial tariff reduction between 1992 and 2005. The treated firms are those that have CEO turnovers in any of the five years after the tariff reduction. The firms are matched in the year of the turnover by the logarithm of total assets, two-digit SIC code, and the implied probability of CEO departure from the probit regression in Column 1 in Table 2. Profit margin is operating income before depreciation divided by sales. ROE is net income divided by shareholder equity. Sales growth is the change of annual sales. Q is the Tobin's Q. For each performance variable, we compute the mean change three years before the turnover to three years after the turnover for treated (average treated difference), the matched firms (average matched difference), and the difference between treated and matched firms (difference-in-differences). We present forced turnovers in Panel A and voluntary turnovers in Panel B. We report the absolute values of t-statistics in parentheses below the estimates. *, **, *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: Forced Turnover			
	Average treated difference	Average matched difference	Diff-in-diffs
Profit margin	-0.034	-0.075	0.041
			(1.81)*
ROE	0.023	-0.137	0.160
			(2.12)**
Sales growth	-0.049	-0.347	0.298
			(2.07)**
Q	-0.386	-0.894	0.507
			(0.83)
Panel B: Voluntary Turnover			
	Average treated difference	Average matched difference	Diff-in-diffs
Profit margin	-0.005	-0.008	0.004
			(0.28)
ROE	0.058	-0.194	0.251
			(1.77)*
Sales growth	-0.002	-0.030	0.028
			(0.35)
Q	-0.035	-0.211	0.176
			(0.91)

Table 12: The Career Path of Departing CEOs

This table reports the results of Probit regression by categorizing the career path of the departing CEO following the turnover. In column 1 and 2, the dependent variable equals to one if the departing CEO is offered an executive (CEO or VP) or a director position in the new firm, and zero otherwise. In column 3, the dependent variable equals to one if the departing CEO receives a higher pay in the new firm or works for a bigger firm or both, and zero otherwise. In column 4, the dependent variable equals to one if the departing CEO's new firm share the same 4-digit SIC code with the previous firm, and zero otherwise. CUT is a dummy variable equals to one when an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. All other variables are defined in Appendix A. Robust standard errors are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)
	Prob(Employment)	Prob(Employment)	Prob(Promotion)	Prob(Same Industry)
	Forced	Voluntary		
CUT	-0.295**	-0.029	-0.280*	-0.256**
	(0.136)	(0.200)	(0.163)	(0.108)
Industry-adjusted ROA	1.083**	0.056	0.325	0.039
	(0.452)	(0.145)	(0.653)	(2.328)
Market-adjusted RET	0.305	-0.103	0.095**	-1.666
	(0.199)	(0.101)	(0.040)	(1.042)
Salechg	0.297	0.225	0.514	-1.161
	(0.328)	(0.182)	(0.682)	(2.044)
Assets	0.238***	0.154***	0.122	-0.264
	(0.057)	(0.037)	(0.109)	(0.288)
Q	0.102	0.011	0.145	0.375
	(0.067)	(0.027)	(0.199)	(0.321)
Age_dummy	0.025	0.611***	0.245	-0.786
	(0.184)	(0.112)	(0.507)	(0.654)
Volatility	0.852**	0.287	-1.155	-5.624**
	(0.363)	(0.220)	(1.167)	(2.632)
Constant	-2.767***	-1.134***	-1.517	4.869*
	(0.552)	(0.328)	(1.260)	(2.693)
Pseudo-R^2	0.187	0.175	0.156	0.289
Observations	260	677	133	133

Table 13: Sub-period Analysis

This table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. All other variables are defined in Appendix. Column 1(2) includes the sample periods before (after) the WTO establishment. Column 3(4) includes sample period in which the number of industries that experience the substantial tariff reduction (Contagion) is below (above) the sample mean. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) Pre WTO	(2) Post WTO	(3) Contagion Low	(4) Contagion High
CUT_POST5	0.333	0.230***	0.028	0.228***
	(0.331)	(0.073)	(0.098)	(0.059)
ROA	-0.928	-0.117	-0.371**	-0.289**
	(0.645)	(0.129)	(0.177)	(0.129)
RET	-0.381	-0.241***	-0.265**	-0.233***
	(0.490)	(0.074)	(0.113)	(0.059)
Before	1.040***	0.139	-0.031	0.050
	(0.376)	(0.139)	(0.241)	(0.107)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.08*		0.00***
Control Variables	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Pseudo-R^2	0.19	0.16	0.14	0.15
Observations	663	3,625	1,689	2,599

Panel B: Turnover-performance sensitivity

VARIABLES	(1) Pre WTO	(2) Post WTO	(3) Contagion Low	(4) Contagion High
CUT_POST5	0.126	0.157*	0.165	0.140*
	(0.581)	(0.083)	(0.133)	(0.082)
ROA	-1.712***	-0.073	-0.122	-0.403**
	(0.628)	(0.155)	(0.149)	(0.168)
CUT_POST5*ROA (β_1)	-3.262	-0.608*	-0.614**	-2.867**
	(5.888)	(0.312)	(0.310)	(1.147)
RET	0.324	-0.249***	-0.222*	-0.238***
	(0.369)	(0.081)	(0.127)	(0.080)
CUT_POST5*RET (β_2)	-0.829	-0.244*	-0.173	-0.277**
	(1.155)	(0.135)	(0.277)	(0.136)
Before	0.283	0.023	0.009	0.034
	(0.456)	(0.178)	(0.272)	(0.151)
Before* ROA	6.109	-3.319	4.666	-0.676
	(4.169)	(2.414)	(3.851)	(1.523)
Before* RET	-3.328***	0.187	-0.880	-0.189
	(1.254)	(0.262)	(0.986)	(0.394)
Wald χ2 Test for β_1 (p-value)		0.06*		0.26
Wald χ2 Test for β_2 (p-value)		0.09*		0.07*
Control Variables	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Pseudo-R^2	0.23	0.16	0.16	0.16
Observations	663	3,625	1,689	2,599

Table 14: Robustness Check

This table reports the results of Probit regression where the dependent variable equals to one if the CEO departs in year t and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. All other variables are defined in Appendix. Column 1 (2) include firms with the Herfindahl Index of segment sales in the year before the event above (below) the mean of all firms in the same industry (2-digit SIC). Column 3 (4) include firms with multiple (single) segment. Column 5 includes only firms with positive exporting sales. Year and industry fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Panel A: Turnover

VARIABLES	(1) H-index Low	(2) H-index High	(3) Multiple Segment	(4) Single Segment	(5) Exporting Firms
CUT_POST5	0.269	0.251***	0.154**	0.866***	0.234**
	(0.235)	(0.076)	(0.074)	(0.264)	(0.116)
ROA	0.540	-0.183	-0.080	-0.558	-1.604***
	(0.918)	(0.137)	(0.134)	(0.463)	(0.358)
RET	-0.289	-0.229***	-0.235***	-0.059	-0.195**
	(0.265)	(0.076)	(0.080)	(0.203)	(0.099)
Before	-0.489	0.190	0.029	0.056	-0.156
	(0.531)	(0.131)	(0.150)	(0.320)	(0.201)
Wald $\chi 2$ Test for CUT_POST5 (p-value)		0.09*		0.11	
Control Variables	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.17	0.17	0.16	0.23	0.16
Observations	1,936	2,350	2,996	1,290	1,521

Panel B: Turnover-performance sensitivity

VARIABLES	(1) H-index Low	(2) H-index High	(3) Multiple Segment	(4) Single Segment	(5) Exporting Firms
CUT_POST5	0.154	0.145*	0.079	0.394	0.149
	(0.318)	(0.086)	(0.085)	(0.289)	(0.164)
ROA	-0.995	-0.157	-0.369	-0.106	-1.475***
	(1.157)	(0.151)	(0.567)	(0.160)	(0.393)
CUT_POST5*ROA (β_1)	-1.144	-1.201***	-0.752	-0.580*	-1.041
	(1.407)	(0.399)	(0.747)	(0.338)	(1.282)
RET	-0.227	-0.241***	0.200	-0.266***	-0.131
	(0.249)	(0.084)	(0.218)	(0.087)	(0.110)
CUT_POST5*RET (β_2)	-0.147	-0.266*	-0.653	-0.313**	0.043
	(0.495)	(0.143)	(0.469)	(0.146)	(0.221)
Before	-0.157	0.035	0.027	-0.214	-0.241
	(0.162)	(0.155)	(0.168)	(0.333)	(0.271)
Before* ROA	-0.172	-0.643	0.716	-1.213	-0.967
	(0.138)	(1.539)	(2.428)	(1.842)	(2.029)
Before* RET	-0.485	-0.159	-0.145	-1.819	-1.621
	(0.367)	(0.393)	(0.418)	(1.286)	(1.777)
Wald χ2 Test for β_1 (p-value)		0.05*		0.19	
Wald χ2 Test for β_2 (p-value)		0.01**		0.12	
Control Variables	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.21	0.16	0.17	0.24	0.16
Observations	1,936	2,350	2,996	1,290	1,521

Appendix A

Variable	Definition
Salechg	Change of firm sales from year t-1 to year t
Assets	Logarithm of total assets in year t
Q	Tobin's q in year t
Age_dummy	A dummy variable equals to one if CEO's age in year t is larger than 65
Volatility	the standard deviation of firm monthly stock return from year t-5 to year t-1
ROA	Return on assets in year t
RET	Stock return in year t
Age	CEO's age in year t

Appendix B Table 1: Linear Probability Regression with Firm Fixed Effects

This Table reports the results of linear probability regression where the dependent variable equals to one if the CEO departs in year t and zero otherwise. CUT_POST5 is a dummy variable equals to one for the first five years after an industry has experienced a tariff rate reduction that is larger than three times the median tariff rate reduction in the same industry, and zero otherwise. Before is dummy variable equal to one if one or two years before a specific industry experience a substantial tariff reduction. All other variables are defined in Appendix A. Year and firm fixed effects are included in all columns. Robust standard errors clustered by 2-digit SIC codes are in parentheses. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

VARIABLES	(1) turnover	(2) turnover	(3) turnover	(4) turnover	(5) turnover
CUT_POST5		0.094***	0.051**	0.065**	0.030
		(0.021)	(0.021)	(0.027)	(0.029)
ROA	-0.019	-0.008	-0.009	-0.012	-0.025
	(0.017)	(0.037)	(0.036)	(0.033)	(0.036)
CUT_POST5*ROA				-0.237**	-0.219**
				(0.106)	(0.103)
RET	-0.036***	-0.029**	-0.028**	-0.029**	-0.029**
	(0.009)	(0.011)	(0.011)	(0.011)	(0.012)
CUT_POST5*RET				0.017	0.037
				(0.024)	(0.024)
Salechg	-0.007	-0.007	-0.003	-0.007	-0.003
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Assets	-0.035***	0.016	0.020	0.026*	0.030**
	(0.012)	(0.015)	(0.015)	(0.013)	(0.015)
Q	-0.003	0.002	0.003	0.002	0.003
	(0.003)	(0.005)	(0.004)	(0.004)	(0.004)
Age_dummy	0.322***	0.332***	0.336***	0.327***	0.318***
	(0.011)	(0.015)	(0.015)	(0.014)	(0.016)
Volatility	0.061*	0.268***	0.306***	0.219***	0.301***
	(0.036)	(0.062)	(0.065)	(0.058)	(0.068)
Before			-0.001		-0.022
			(0.026)		(0.030)
Before* ROA					0.012
					(0.369)
Before* RET					0.016
					(0.051)
Constant	0.336***	-0.249**	-0.298***	-0.261***	-0.335***
	(0.099)	(0.111)	(0.111)	(0.100)	(0.108)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.16	0.15	0.17	0.15	0.16
Observations	4,288	4,288	4,288	4,288	4,288

Appendix B Table 2: Industry Characteristics on Tariff Rate Change

This table reports results of OLS regressions that explain the change in tariff rate as a function of lagged industry (mean and median) variables. In column 1 and 2, the dependent variable is the annual variation of import tariff rates. In column 3 and 4, the dependent variable is a dummy that equals one if the industry experiences a substantial tariff cut and zero otherwise. The sample consists of all industries that are matched to the tariff data. Capital expenditures, R&D, acquisitions, cash holdings, debt financing, equity financing and leverage are all scaled by total assets. All specifications include both year and industry fixed effects. Industry clustered standard errors are reported in parentheses below the estimates. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

	Dependent Variable			
	ΔTariff Rate		Tariff Reduction	
VARIABLES	Mean	Median	Mean	Median
Ind. Capital Expenditures	-3.276*	-1.945	0.466	0.461
	(1.695)	(2.194)	(0.325)	(0.446)
Ind. R&D	0.088	-2.459	-0.033	-0.512
	(0.263)	(2.132)	(0.035)	(0.436)
Ind. Acquisitions	10.356	4.413	-2.226	-1.827
	(7.935)	(7.767)	(2.125)	(1.669)
Ind. Cash Holdings	0.414	0.619	-0.047	-0.020
	(0.528)	(0.774)	(0.103)	(0.113)
Ind. Log of Total Assets	0.063	0.046*	-0.026	-0.019
	(0.045)	(0.027)	(0.016)	(0.012)
Ind. Debt Financing	0.624	0.451	-0.070	-0.019
	(0.446)	(0.384)	(0.071)	(0.077)
Ind. Equity Financing	0.010	-0.017	-0.008	-0.000
	(0.121)	(0.225)	(0.050)	(0.052)
Ind. Leverage	0.001	0.026	0.000	-0.014
	(0.001)	(0.214)	(0.000)	(0.033)
Ind. Book-to-market	-0.000	0.006	-0.000	0.003
	(0.000)	(0.008)	(0.000)	(0.003)
Ind. Sales Growth	0.001	0.109	-0.000	0.019
	(0.003)	(0.225)	(0.002)	(0.029)
Ind. ROE	-0.001	-0.000	0.000	-0.000
	(0.002)	(0.000)	(0.001)	(0.000)
Ind. Return	-0.002	0.000	0.002	-0.000
	(0.006)	(0.001)	(0.002)	(0.000)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	2,107	2,107	2,107	2,107
R-squared	0.14	0.14	0.13	0.13