

Corporate Governance and International Trade Shocks

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Abstract

We study how the quality of corporate governance affects firms' reaction to changes in the competitive environment. Our identification strategy relies on exogenous variations in both corporate governance and product market competition experienced by U.S. firms in the late 1980s. While the Canada-U.S. Free Trade Agreement of 1989 increased foreign competition, the business combination laws, passed between 1985 and 1991 in thirty U.S. states, weakened corporate governance for firms incorporated in those states. We find that the operating and stock market returns of firms with worse corporate governance were more negatively affected by the increase in competitive pressures. We also find that worse corporate governance impaired the ability of exporters to benefit from the reduction in export tariffs to Canada. These differences in performance are related to the lower financial constraints of well-governed firms.

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1. Introduction

Extensive research has documented that, by shaping agency conflicts within the firm, corporate governance has significant implications for such corporate policies as acquisitions (Masulis et al. 2007), innovation (Aghion et al. 2009; Sapa et al. 2009), cash holdings (Dittmar and Mahrt-Smith 2007; Harford et al. 2008) and debt financing (Klock et al. 2005). Other work underlines the importance of corporate governance in facing an adverse shock such as the Asian financial crisis (Johnson et al. 2000; Mitton 2002). Overall, better-governed firms have higher productivity (Bertrand and Mullainathan 2003) and value (Gompers et al. 2003; Cuñat et al. 2011).

We contribute to this literature by examining how corporate governance affects a firm's response to changes in the competitive environment. In disentangling empirically the effects of governance and competition on corporate outcomes, we face two major obstacles. First, corporate governance is typically correlated with unobservable factors, which can bias any inference regarding the effect of corporate governance on firm outcomes. Second, because governance and competitive actions are jointly determined in equilibrium, it is difficult to separate out their individual consequences for firms. In order to avoid these problems, we consider an exogenous variation in corporate governance and how it affects a firm's reaction to a subsequent exogenous increase in competitive pressures. These exogenous variations are provided by two policy changes: the Canada-U.S. Free Trade Agreement (FTA) of 1989, which led to a significant increase in foreign competition for U.S. firms; and the business combination (BC) laws, passed by thirty U.S. states over the period of 1985-91, which worsened corporate governance of firms incorporated in those states by reducing the threat of hostile takeovers.

Using a sample of publicly traded U.S. firms over 1976-95, we find that the FTA's negative effect on operating performance and stock market valuation was greater for firms incorporated in states that had previously passed BC laws. This evidence indicates that worse corporate governance rendered firms either unable or unwilling to respond to changes in the competitive environment. Non-exporters under worsened governance became more vulnerable to the increase in competition induced by lower import tariffs. Moreover, worse-governed exporters did not benefit from the decrease in export tariffs to Canada, even though it increased the size of their product market. The negative effect of the FTA was greater for firms that were small, young, less productive, and located closer to the Canadian border. We establish that the effect of governance

was in part due to lower financial constraints of better-governed firms, suggesting that financial constraints became more important after competition strengthened.

The Canada-U.S. FTA provides a plausibly exogenous variation in competition. Contrary to some other free trade agreements, the Canada-U.S. FTA was largely unanticipated and was not accompanied by any other significant economic reform; nor was it a response to prevailing economic conditions (Trefler 2004; Breinlich and Cuñat 2011). In addition, as Canada and the U.S. are main trading partners, the effect of the FTA was economically significant for the U.S. economy.¹ Furthermore, since the agreement consisted mainly of abolishing existing import tariffs that differed across industries, the increase in competition following the FTA had a measurable cross-sectional variation. Similarly, the passage of BC laws induced exogenous variations along an important dimension of corporate governance: the market for corporate control. In particular, BC laws restricted certain transactions (e.g. mergers and asset sales) between firms and their large shareholders for a period of three to five years after the large shareholder's stake passed a prespecified threshold. This moratorium had the effect of hindering acquirers' access to target firms' assets and thus limited the former's ability to pay down acquisition debt. By making hostile takeovers more difficult if not impossible, BC laws weakened the overall quality of corporate governance and thereby increased managerial slack (Bertrand and Mullainathan 2003).

We focus first on operating performance. In particular, we interact a dummy indicating whether a firm was incorporated in a state with BC laws and a variable measuring the FTA-induced reduction in import tariffs within the firm's industry. Thus, our identification gains from the staggered implementation of BC laws and also from the different extent to which the trade reform affected different industries. The inclusion of firm fixed effects allows us to control for time-invariant differences in corporate governance and competitive positions. Also, since our identification relies on the interaction between states of incorporation and industries, we can control for the economic conditions of the states where firms are headquartered as well as for general industry trends.

¹ Clausing (2001) finds that a 1% reduction in post-FTA import tariffs was associated with a 10-11% increase in U.S. imports from Canada. He also estimates that the FTA raised annual Canadian exports to the U.S. by \$23 billions. Since Canada was the main U.S. trading partner (accounting for about one fifth of total imports) and since there was no trade diversion, the effect of the FTA was substantial for the U.S. economy.

Consistently with the notion that BC laws increased managerial slack, we find that the adoption of BC laws had a significant negative impact on the operating performance (measured by return on assets, or ROA) of firms incorporated in that state: on average, ROA dropped by 1.9% for these firms. The FTA, too, had a negative impact on operating performance. The ROA of firms that experienced an average tariff cut declined by 1.1% after the trade agreement. Examining the combined effect of the two policy changes, we find that the interaction between BC laws and lower import tariffs is also negative and statistically significant. The total effect for firms exposed both to BC laws and an average reduction in import tariffs was a decline of 3.1% in ROA.

After establishing an effect for the average firm, we examine whether our results are more pronounced for firms that are expected to be most affected by BC laws and the FTA. We first posit that non-exporters are affected negatively by trade liberalization because they are less likely to benefit from reduced export tariffs – that is, the FTA affected them primarily through the *import* tariff reduction. In line with this prediction, we find that worse corporate governance amplifies the negative effect of import competition for non-exporters. For exporters, in contrast, we find that worse governance reduces their ability to benefit from the lowered export tariffs to Canada.

Trade liberalizations have been found to induce welfare gains as the market shares are reallocated from the least to the most productive firms (Pavcnik 2002; Melitz 2003). It has also been shown that low-productivity firms are more likely to be taken over because they offer higher potential efficiency gains (Maksimovic and Phillips 2001). Thus, the combination of worse corporate governance and a subsequent increase in foreign competition should harm less productive firms the most. Indeed, our results indicate that, when the competition increases, worse corporate governance is especially harmful to firms with lower total factor productivity.

Finally, gravity models of international trade suggest that trade intensity decreases with distance. We examine the geographic heterogeneity of our results by testing for whether the negative effect of the trade shock (and its interaction with governance quality) depends on the distance between Canada and the U.S. firm's headquarters. We find that both of these negative effects on profitability are concentrated among firms located closer to the Canadian border.

One concern with our results is that passage of the FTA or of BC laws may have been anticipated – in other words, that the “parallel trends” hypotheses required for the validity of our

model are violated. We therefore perform a placebo test, which assumes that the FTA was already expected in 1986 (in fact, negotiations on the agreement began in September 1985), but find no effects of such placebo policy on operating performance. Similarly, we find no significant effects of a placebo implementation of BC laws three years before their actual passage. Another concern is that the size of the tariff reduction was correlated with some pre-FTA industry characteristics and instead of the change in competition with our empirical specification we capture these inherent characteristics. To mitigate this concern, we control for several industry characteristics that are typically associated with trade protection (Guadalupe and Wulf 2010). Our results are robust to the inclusion of the Herfindahl-Hirschman index (HHI), which controls for the domestic competition in U.S. industries, and also to the interaction between the HHI and BC laws (as in Giroud and Mueller 2010). Furthermore, our results are robust to the exclusion of firms incorporated in Delaware and of firms that operate in more than one industry (multisegment firms). Finally, we confirm our findings by adopting an alternative proxy for the quality of corporate governance – the extent of institutional ownership in the firm (Nikolov and Whited 2009) – and an alternative proxy for foreign competition – the industry-level import penetration as instrumented by the real exchange rate (Bertrand 2004).

In addition to these results on operating performance, we document a significant decline in the market value of firms that are affected by tariffs cuts and are incorporated in states with BC laws. First, we confirm the results in terms of market-to-book ratios. Second, we use an event study to show that companies with worse corporate governance had a more negative stock price reaction to the FTA. The trade agreement encountered substantial opposition in Canada, and its fate was determined by a narrow victory of the Progressive Conservative Party in the federal election of November, 1988. Thus, the election date offers a good setting for assessing the stock market reaction to the FTA (Morck et al. 2000; Breinlich 2010). We examine abnormal returns for U.S. firms on the trading days following the election. Our findings indicate that, over a period of six days, stock prices dropped by 1.88% more for firms subject to BC laws than for other firms.

Finally, we examine the channels through which corporate governance might affect firm performance when competition changes. Broadly, such effects can be justified in two ways. Entrenched managers could be taking advantage of a “quiet life”; thus, because of earlier poor actions or unwillingness to react to a shock that requires new actions to be taken, their firms

would suffer the most. Also, managers in firms with worse governance might be unduly constrained and thus not able (although willing) to respond appropriately to an increase in competition. We explore the latter explanation by looking into firms' financial constraints, which play an important role in how firms react to trade liberalization (Manova 2008). First, we find evidence of larger effects on operating performance among the firms that were *ex ante* the most financially constrained, i.e. firms in industries that rely heavily on external finance, firms without a credit rating, and small and young firms. Second, we test for whether a subsequent exogenous increase in financial need magnified the negative effect on performance for worse-governed firms facing the competitive shock. Examination of the oil spike that occurred during the first Gulf War in 1990 reveals that an unexpected change in credit conditions mostly affected firms that had recently experienced declining tariffs and the introduction of BC laws. Third, looking at the actual changes in the capital of U.S. firms, we find that firms subject to BC laws raised less external finance (both debt and equity) in the post-FTA period than other firms did. When combined, these results support the explanation that increased competition had a more negative effect on worse-governed firms (at least in part) because of the more binding financial constraints they faced.

This paper contributes to several streams of literature. First, our work is closely related to the literature that studies how firms adapt to an increase in competition. It has been shown that more competition leads to outsourcing (Grossman and Helpman 2004), to flatter and more decentralized organizations (Bloom et al. 2010; Guadalupe and Wulf 2010), to greater pay-for-performance sensitivity (Cuñat and Guadalupe 2005, 2009), and to upgrading of technology (Bustos 2011). In demonstrating how firms' responses to trade liberalization are shaped by the quality of their governance, our results indicate that misalignment of incentives between managers and shareholders limits the readiness of firms to face changes in the competitive environment. We thus also extend the work of Khanna and Tice (2000) who show that firms with less agency conflicts (those with higher inside ownership, or the ones that are privately owned) respond less aggressively to the entry of a new rival. In this paper we establish the value effects, i.e. that after a rise in competition worse-governed firms in fact suffer in terms of operating and stock market performance.

Another study that is close to ours is that of Morck et al. (2000), who find that the Canadian firms affected most by the FTA were heir-managed family firms. Following the expansion of

export markets, these firms lost their domestic advantage over the widely-owned firms. Here we instead focus on U.S. companies and, in particular, on the corporate governance aspect on the firm's response to a trade shock. In addition, we control for the endogeneity of corporate governance by employing BC laws as a shock to the market for corporate control. We also uncover a channel – namely, the need to raise external funds – that explains why corporate governance matters for a firm's ability to compete in the product market. Finally, we document that the role played by corporate governance in responding to trade liberalization depends on the nature of a firm's operations. For domestic firms, worse governance limits their response to increases in import competition; for exporting firms, worse governance reduces their capacity to benefit from greater business opportunities in Canada.

Our paper is also related to the literature studying whether competition acts as a governance device (Alchian 1950; Stigler 1958). More recent work has provided empirical support to this claim. For instance, Giroud and Mueller (2010) document that BC laws reduced profitability primarily in less competitive industries.² But whereas Giroud and Mueller (2010) explore how changes in corporate governance affect firms in a given competitive environment, we investigate governance-induced differences in firms' readiness to compete under increasing import competition in product markets. In fact, we find that increased competition for a given firm does not reduce the importance of worse corporate governance. On the contrary, weaker corporate governance impairs firm's profitability after the rise in competition. This shows that, even if competition is a corporate governance device, it takes time for the threat of being driven out of the market to actually realize.

Finally, our work is related to the literature on heterogeneous firms and international trade (Melitz 2003). Recent research in this field has emphasized the role of credit supply on firms' exports (Manova 2008, 2010; Paravisini et al. 2011). We focus on how different levels of access to financing affect the response of domestic producers to an increase in import competition. Our results suggest that corporate governance is one of the factors determining which firms are likely to benefit (or suffer) from trade liberalization.

The paper proceeds as follows. Section 2 describes our data and key variables. Section 3 discusses our empirical methodology. Section 4 presents our main findings on operating

² Kadyrzhanova and Rhodes-Kropf (2011) find that the interaction between industry concentration and corporate governance can be either positively, or negatively associated with a firm's value depending on the type of the governance provisions considered.

performance. Section 5 discusses results on market values. Section 6 looks at the effect of export tariff reduction for exporting firms. Section 7 explores the role of financial constraints. Section 8 concludes.

2. Data and variables

2.1. Data sample

Our data set consists of publicly listed firms located and incorporated in the United States. We restrict our analysis primarily to manufacturing firms (SIC codes up to 4000) because the FTA affected only the tradable sector (Guadalupe and Wulf 2010). We draw our data on firm outcomes from the Compustat data set³. We exclude the firms for which net sales or book value of assets are either missing or negative as well as firms in the industries for which we have no data on tariffs. Our sample period ranges from 1976 through 1995 and consists of 3,567 unique firms and 34,279 firm-year observations, although the presence of missing values for control variables reduces the number of observations used in the regressions.

2.2. Measures of corporate governance

A first generation of anti-takeover statutes were passed by some U.S. states in the 1970s. These statutes were deemed unconstitutional by the Supreme Court in 1982, primarily because states exceeded their jurisdictional reach in applying them to firms incorporated outside their state. The mid-1980s saw states introducing anti-takeover legislations aimed to firms incorporated in the legislating state, and the practice spread across the country after Indiana's new law was declared constitutional by the Supreme Court in 1987. As reported by Bertrand and Mullainathan (1999), the most stringent of these anti-takeover regulations were BC laws that made hostile takeovers more difficult by restricting an acquirer's access to the target firm's assets for a period of three to five years, thus limiting the ability to use debt to finance the acquisition. We exploit the introduction of BC laws as our key variation in corporate governance.⁴

³ We use the Compustat data set of public firms – rather than establishment-level data from the U.S. Census – because most of the financial decisions that drive our results are made at the headquarters and not at individual plants. Note also that, since private firms are typically more constrained financially than are public firms, our results should generalize to the broader array of firms covered by the U.S. Census.

⁴ In unreported results, we also consider an anti-takeover index computed using all statutes that apply in a certain state (as in Sapra et al. 2009). Yet much as in Bertrand and Mullainathan (1999), we find little impact of other anti-takeover legislations beyond BC laws.

BC laws were introduced in various U.S. states at different times. Table 1 reports when BC laws were passed in each state as well as the distribution of firms by states of location and states of incorporation.⁵ In our sample, only 33.1% of the firms are actually incorporated in their state of location.⁶ Twenty states, which account for 15.7% of firm-year observations, never passed a BC law.

Figure 1 illustrates the timing of BC legislation with respect to the FTA. Most of the firms (79.1%) are incorporated in a state that passed a BC law in or before 1989, the year of the FTA. For this reason, we interpret our results as indicating the combined impact of an exogenous worsening of corporate governance and a subsequent increase in foreign competition.⁷

As a robustness check, we use the fraction of institutional ownership as a proxy for the quality of corporate governance. Standard corporate governance indices, such as those constructed by Gompers et al. (2003) and Bebchuk et al. (2009), are unavailable for the period we study. Moreover, Nikolov and Whited (2009) claim that those indices fail to capture latent poison pills which can be introduced without shareholder consent. Hence they suggest that institutional investor ownership is a better proxy for corporate governance. We draw the annual data on institutional investor holdings from SEC 13 filings recorded in the Thompson Financial CDA/Spectrum database.⁸

2.3. Measures of competition and industry concentration

The FTA abolished existing trade duties between U.S. and Canada. Because these tariffs differed across industries, we quantify how the FTA influenced foreign competition for U.S. firms by using the tariffs on imports from Canada that applied to a given industry *before* the implementation of the FTA. As shown by Clausing (2001), the larger were the import tariffs in place in a given industry, the greater was the competitive shock.

⁵ Given that firms are affected by BC laws in their state of incorporation, the potential for misclassification arises because Compustat only reports the state of incorporation for the latest year available. However, re-incorporation during the period considered was rare (Romano 1993) and so we assume that no such changes occurred over the sample period.

⁶ The table reveals that, as expected, most of our sample firms are incorporated in Delaware; however, in Section 4.3 we demonstrate that our results are robust to the exclusion of Delaware-incorporated firms.

⁷ To confirm this interpretation, we perform a robustness check (see Section 4.3) that excludes firms incorporated in states that passed BC laws *after* the FTA.

⁸ All institutional investors with more than \$100 million of securities under management must report their holdings to the SEC on form 13F and must also disclose all common stock positions that exceed 10,000 shares or \$200,000.

We use each firm's primary four-digit SIC code to identify its industry and thus the relevant tariffs. We extract data on tariffs from the Center for International Data at UC Davis. We start by computing average tariffs in the industry by summing the customs value of imports and duties paid across all subindustries of each four-digit SIC industry in each year before 1989. We then divide the total duties paid by the total customs value of imports and use this as our proxy for the import tariffs from Canada that each four-digit SIC industry faced in a particular year. The main treatment in our specification is the change from the average import tariffs in the pre-FTA period, computed over the three years prior to the implementation of the FTA (1986-88), to zero tariffs in the post-FTA period (from 1989 onwards). Table 2 lists the twenty industries with the highest tariffs on Canadian imports. The median cut in import tariffs due to the FTA was 3.3% and it ranged between 0% and 36%.

Because of its bilateral nature, the FTA also improved opportunities for U.S. exports to Canada. To separate this effect from the increase in competition, we use export tariffs data from Trefler (2004) and construct a variable similar to our variable for the import tariffs. Again, we measure the reduction in export tariffs to Canada at the level of U.S. four-digit SIC industry.

Although we consider the import and export tariffs to be zero for all industries after 1989, in some industries the tariffs reductions were phased out over periods as long as ten years following the FTA's passage.⁹ Nevertheless, we treat all industries equally regardless of their phase-out schedule.¹⁰ As discussed in Guadalupe and Wulf (2010), this has the advantage of mitigating the potential endogeneity of the phase-out schedule.

We control for existing domestic concentration with the Herfindahl–Hirschman index (HHI) based on the sales distribution of publicly listed firms in each three-digit SIC industry. A higher HHI corresponds to greater industry concentration. We correct for potential misclassifications due to the presence of a single firm in a given industry by omitting 2.5% of the firm-year observations at the right tail of the HHI distribution (cf. Giroud and Mueller 2010). The average HHI in 1988 – that is, one year prior to the passage of the FTA – is around 0.2 (see Panel A of Table 3).

⁹ Annex 401 of the FTA prescribes the actual phase-out schedules. However, there is anecdotal evidence that many industries lobbied to hasten the phase-out with the first review of the initial schedule adopted just a year after the FTA (see, e.g., “Canadian Trade Pact Accelerated”, *New York Times*, March 14, 1989).

¹⁰ Thus, we implicitly assume that (i) firms started adjusting to the new competitive situation immediately following the FTA's passage, and (ii) phase-outs served only to maintain temporary profits. However, untabulated results show that the results are robust to using the actual tariffs, as reestimated annually after 1989.

As a robustness check, we adopt the industry-level import penetration as an alternative measure of foreign competition. An industry's import penetration is defined as the dollar value of imports divided by the sum of dollar value of imports and dollar value of domestic production. Because import penetration can be endogenous to industry's profitability, we follow Bertrand (2004) and instrument it using the weighted average of the real exchange rates of the importing countries. In particular, the weights for each industry are the shares of each foreign country's imports in the total imports of that industry; thus, the instrument varies both by time and industry.

2.4. Firm outcomes

Our main measure of operating performance is the return on assets, computed as earnings before interest, taxes, depreciation, and amortization (EBITDA) divided by the beginning-of-year book value of assets.¹¹ To mitigate concerns about outliers, we drop 1% of the firm-year observations from each tail of the ROA distribution, although this procedure does not affect our results.

We also employ the ratio of market value to book value (MB ratio). To compute it we divide the market value of each firm (at the end of its fiscal year) by its book value of common equity. Following Baker and Wurgler (2002), the MB ratio is limited to the interval between 0 and 10.

We define a few of firm characteristics in order to examine whether our hypothesized effect is stronger for firms expected to be more affected by the FTA. First, we sort firms by their total factor productivity (TFP) in 1984, which is estimated via the semiparametric procedure described in Olley and Pakes (1996).¹² Second, we measure each firm's proximity to the Canadian border; this is proxied by the distance from the largest city in the state of location of the firm's headquarter to the nearest U.S.-Canada border crossing. Finally, when examining the

¹¹ We are primarily interested in how an increase in foreign competition affects the profitability of the firms; however, since profitability is monotonically and positively related to productivity (Imrohoroglu and Tüzel 2011) and since productivity is often proxied by profitability measures in the finance literature (Novy-Marx 2010, Gourio 2007), our results also suggest that a bilateral weakening of trade barriers has, on average, a more negative effect on the productivity of domestic firms with worse corporate governance. In fact, our results on profitability are broadly in line with those based on using a measure of total factor productivity as our dependent variable.

¹² The firm-level variables used to compute TFP are the logarithms of sales, employment, capital expenditures, and property, plants and equipment.

effect of the reduction in export tariffs for exporting firms, we classify exporters as firms that have exports which constitute at least 1% of sales in the pre-FTA period.¹³

2.5. Financing

We measure financial constraints in three ways. First, following Rajan and Zingales (1998), we classify firms based on whether the industry in which they operated was above or below the across-industry median of the dollar value of external financial capital raised in 1984 (i.e. one year prior to the passage of the first BC law), normalized by the dollar value of industry assets. Second, we sort our sample by whether or not in 1985 the firms had been assigned a long-term bond rating by Standard & Poors (as reported in Compustat).¹⁴ A bond rating enables firms to access public debt markets and is therefore related to lower credit constraints (Kashyap et al 1994; Faulkender and Petersen 2005). Moreover, as smaller and younger firms are more vulnerable to capital market imperfections (Almeida et al. 2004), we look at the firms at different stages of development (i.e., young and old firms) and different sizes (i.e. small and large firms).

We also provide a test using an exogenous shock that affected the financing needs of some firms: the oil price spike at the end of 1990. In particular, we measure a firm's exposure to this shock by the correlation between daily returns on its stock price and the changes in the West Texas Intermediate (WTI) crude oil spot price, estimated using the data from 1989.

Finally, our measures of external financing activity are based on net changes in debt and equity, estimated as in Hovakimian et al. (2001) and Leary and Roberts (2005). We define the capital raised in a given year as the net change in equity and debt, normalized by the firm's book value of assets in the previous year. We are interested in firms that raise (rather than return) capital, so we consider only positive values of the capital raised. That is, if the net change in debt and equity is negative, we record the capital raised as 0.¹⁵ To deal with outliers, the fraction of capital raised to existing assets is capped at 1. Finally, due to data reliability we follow Leary and Roberts (2005) in restricting our external finance analyses to the period of 1984-95.

We report summary statistics for the main variables of interest in Table 3. Appendix 1 describes all the variables used.

¹³ We use a 1% threshold to avoid trivial values in exports. However, our results are qualitatively similar if exporters are simply classified as firms reporting *any* exports (and non-exporters as firms reporting *no* exports) in a given year.

¹⁴ Data limitations necessitate that we use data from 1985 rather than 1984.

¹⁵ However, allowing negative values for net changes in debt and equity does not substantially alter our results.

3. Identification strategy

Because corporate governance is an equilibrium outcome that is largely determined by the firm itself, it is difficult to establish a causal link between corporate governance and firm performance. A positive association between profitability and a measure of governance quality, such as board independence, could indeed mean that good governance is beneficial for firm performance. However, such an inference is plagued by three problems. First, companies may adopt effective governance mechanisms in response to good performance, in which case, corporate governance is not the determinant but rather the consequence of firm performance. Second, the quality of corporate governance may be correlated with factors (e.g. CEO's preferences) that are not observed by the researcher, yet directly affect firm policies; in this case, one would wrongly attribute the effect of such omitted factors to corporate governance. Third, if we seek to establish whether corporate governance alters the effect of a changing competitive environment on the firm's performance, then we run into additional problems. For the industries in which good corporate governance becomes increasingly more important for operating performance, competition could intensify. In such a scenario, firms could be improving their governance as the means to improve performance and thus could end up competing more aggressively. Finally, some unobservable factors (e.g., increases in industry's productivity) might be increasing the extent of competition while also cementing the link between corporate governance and performance.

We deal with these concerns by combining two types of difference-in-differences models that establish exogenous variations in both the quality of corporate governance and the intensity of foreign competition. First, we exploit the staggered passage of BC laws in the states of incorporation (Bertrand and Mullainathan 2003; Giroud and Mueller 2010). After controlling for state-level business conditions and firm fixed effects, we assume that the parallel trends between treatment and control groups hold, and thus we are able to identify the effect of worsened corporate governance on a firm's performance.¹⁶ Second, we use passage of the FTA as an

¹⁶ Because our identification relies on BC laws that were passed a few years before the FTA, one concern is that firms might already have adjusted their internal governance mechanisms, in which case the BC laws (especially those passed early in the period under consideration) should not matter by the time of the FTA. Yet, such concerns mean only that we are estimating a lower bound of the corporate governance effect to the FTA since we are unable to control for the fact that some firms having already reduced their managerial slack. Still, we address this concern

exogenous variation in the competitive environment. Even though the timing of the change was uniform, the exposure to the FTA and thus the agreement's effect on competition varied across industries, because pre-FTA tariffs for imports from Canada differed across U.S. industries.¹⁷

There are several methodological advantages to combining the FTA and the BC laws in order to establish exogenous variations in competitive pressures and corporate governance. First, note that addressing the combined impact of competition and corporate governance on firms solely by means of their cross-sectional measures would leave the analysis open to omitted factor bias. Adopting shocks to competition and governance provides a more tractable way to mitigate this concern than controlling for all potentially omitted variables. Second, one could argue that corporate governance has an effect on the firm's strategy in the product market, and hence on measures of industrial composition. It is therefore difficult to interpret the impact of BC laws and, for example, HHI on firm outcomes if the HHI itself changes in response to BC laws. Using the FTA addresses this concern because BC laws should not have induced immediate systematic increases in import tariffs, which are decided at the international level.¹⁸ Third, using the FTA to establish exogenous and measurable variations in competition circumvents the methodological difficulties of measuring actual competitive pressures.¹⁹ Similarly, BC laws provide a reliable way to assess the effect of corporate governance because consistent firm-level corporate governance measures are lacking for the period surrounding passage of the FTA.²⁰ Figure 2 depicts our identification strategy in the graphical form.

in two ways. In the first place, our results are robust to the exclusion of firms that were exposed to the earliest passage of BC laws (in 1985) and thus had the most time to adjust. Second, when looking at the dynamic effect of BC laws on firms, we find that their negative effect on ROA did not diminish, but rather persisted over the years after the BC was passed.

¹⁷ In adopting this approach, we follow Card (1992), who uses a variable to classify cross-sectional units in terms of their exposure to a law change. A statistically significant coefficient for this treatment variable means that it is a good predictor of changes in the dependent variable induced by the policy change (Angrist and Pischke 2008). In our case, the extent of exposure is measured by the average tariffs on Canadian imports that applied in the industry prior to the FTA.

¹⁸ If anything, import tariffs decreased slightly over time over the period during which the BC laws were passed.

¹⁹ Many empirical works have stressed the importance of dealing with the endogeneity of product market competition, by using, for example, regulation indexes (Guadalupe and Perez-Gonzales 2011), exchange rates and import tariffs as instruments (Cuñat and Guadalupe 2005), sharp appreciation of currencies (Cuñat and Guadalupe 2009), and policy instruments (Aghion et al. 2005). Note also, that such measures as the HHI and the Lerner index are strongly non-monotonic in the actual competitive situation (Schmalensee 1989), and fail to account for the competitive pressure exerted by potential entrants. An additional issue – that HHI values in the empirical corporate finance research are often based only on public corporations that constitute a small fraction of the universe of firms – is addressed by Ali et al. (2009).

²⁰ One concern is that BC laws may have had no corporate governance effect and merely made it more difficult to take over inefficient firms. In fact, previous research finds no actual drop in the M&A activity after BC laws were

Our baseline model combines variations induced both by BC laws and the FTA. Whereas each policy taken separately measures the respective impact of changing governance and competition, their interaction identifies the effect on operating returns of exogenously worsened governance and a subsequent increase in foreign competition. Thus, we estimate the following regression:

$$ROA_{ijkt} = \alpha_i + \alpha_t + \beta_1 \text{Import Tariff cuts}_{jt} + \beta_2 \text{Export Tariff cuts}_{jt} + \beta_3 BC_{kt} + \beta_4 BC_{kt} \times \text{Import Tariff cuts}_{jt} + \gamma' X_{ijkt} + e_{ijkt} \quad (1)$$

where i indexes firms, j indexes four-digit SIC industries, k indexes states of incorporation, and t indexes time. The dependent variable ROA_{ijkt} is the return on assets. *Import tariff cuts_{ij}* measures the average level of tariffs on imports from Canada in the industry j before the passage of the FTA, interacted with a dummy, set equal to 1, for the post-FTA period, i.e. *Import tariff cuts_{ij}* is equal to 0 before 1989 and to a positive value after 1989.²¹ *Export tariff cut_{ij}* is the corresponding measure for tariffs on exports to Canada in the industry j . We assume that no tariffs remained after 1989, so the coefficient for *Import tariff cuts_{ij}* measures how ROA changed for firms that were exposed to greater foreign competition due to the FTA. BC_{kt} is a dummy, set equal to 1 if the firm's state of incorporation k has BC laws in year t (and to 0 otherwise). If BC laws do have a negative effect on corporate governance that translates into lower operating returns, then we expect β_3 to be negative. The coefficient for our key variable of interest $BC_{kt} \times \text{Import tariff cuts}_{ij}$ measures how the negative effect of the cut in import tariffs varies as a function of the exposure to BC laws. The null hypothesis for β_4 is that an increase in foreign competition affects firms' returns uniformly, regardless of their governance, i.e. $\beta_4 = 0$. We expect a negative β_4 if worse governance makes firms respond inadequately to increases in competition.

As documented by Giroud and Mueller (2010), firms incorporated in the states with and without BC laws differ in many observable characteristics. For this reason we must control for a number of confounding influences. Our specification includes year dummies, α_t , and firm fixed effects, α_i , to mitigate the scope for omitted factor bias. In addition, our vector of controls, X_{ijkt} ,

passed (see, e.g., Comment and Schwert 1995; Giroud and Mueller 2010). Garvey and Hanka (1999) suggest that BC laws raise the cost of takeover activity but also the resulting slack increases the payoff from a successful takeover. Therefore, reduced *threat* of takeovers need not reduce actual takeover activity.

²¹ Following Guadalupe and Wulf (2010), we compute the pre-FTA import tariffs using four-digit SIC averages for the period between 1986 and 1988 as the baseline treatment. As robustness checks, we use alternative procedures, such as those based on three-digit or two-digit SIC codes, averages taken for the period between 1983 and 1988, or averages for the entire period (1976-88) preceding the FTA.

includes firm size, its squared term and firm age. Moreover, we control for the one-year lagged HHI in order to control for the domestic industry concentration.

Also, we control for general conditions at the industry level as well as for contemporaneous economic conditions in the states where firms operate. We do so by estimating state and industry linear trends. In particular, we calculate time-varying averages of the ROA of firms in certain state of location, excluding the firm in question when computing these averages. In a similar fashion, we calculate time-varying averages of the ROA of firms in certain industry, excluding the firm in question when computing these averages. In our robustness checks, we follow Guadalupe and Wulf (2010) and also control for preexisting industry characteristics that are typically related to trade protection: skill intensity, capital intensity, and TFP growth.²²

We cluster the standard errors by the state of incorporation, which accounts for arbitrary correlations of residuals across different firms in a given year and state of incorporation, across different firms in a given state of incorporation over time, as well as over different years for a given firm. However, our findings are robust to alternative clustering methods: at the firm level, at the industry level, two-way clustering at the levels of industry and state of incorporation, and by block-bootstrap, as proposed by Bertrand et al. (2004).

4. Operating performance

4.1. Baseline results

Table 4 presents results for the full specification which includes BC laws, a cut in import tariffs and the interaction between them. First, to validate our claim that BC laws are a shock to corporate governance that negatively affected operating returns, we look at the effect of BC law (Column 1). The results, which are in line with those reported by Bertrand and Mullainathan (2003), confirm a negative effect of BC laws on profitability. Meanwhile, consistently with the prediction that the FTA increased foreign competition for U.S. firms, we find that the coefficient for reduced import tariffs is negative and significant; firms exposed to the average (3.3%) tariff

²² Industry controls are extracted from the NBER-CES Manufacturing Industry Database. We compute these controls in the same way as our main tariffs, i.e. by taking the averages for the period 1986-88 and interacting them with a dummy, set equal to 0 before 1989 and set equal to 1 on and after 1989.

reduction saw their ROA decline by 1.1% (the average ROA in our sample is 6.7%).²³ These findings remain unchanged after controlling for the industry HHI (Column 2).

Columns (3) and (4) report our main test by including the interaction between BC laws and import tariff cuts. The coefficient for this interaction term is negative and statistically significant at the 5%, even though the cut in import tariffs by itself is not significant. The drop in ROA was 3.1% for firms incorporated in states with BC laws *and* exposed to the average cut in import tariffs. Thus, the increase in competition affected operating returns only for firms with recently worsened corporate governance.

In Columns (5) and (6), we add the variable measuring the reduction in export tariffs and its interaction with BC laws, thereby controlling for the fact that the FTA also reduced export tariffs to Canada. Our estimates indicate that the interaction between BC laws and the reduction in import tariffs remains negative and statistically significant, whereas the interaction between BC laws and export tariffs cut is not significant. For the average firm, our findings are thus driven by the increase in foreign competition in U.S. domestic markets and not by the greater ease of exporting to Canada. In Section 6 we examine how this result varies for exporters and non-exporters.

Overall, our findings indicate that worse corporate governance impairs the performance of firms that are subject to greater foreign competition.

4.2. Firm characteristics

We now explore whether the effect is stronger for firms that should have been affected more by the FTA. First, we check whether less productive firms were hurt most. We then show that our effect is present mainly among firms that are more closely located to the Canadian border.

We begin by differentiating firms by their productivity. Models of trade integration with heterogeneous firms (see, e.g., Melitz 2003) suggest that only low-productivity firms are negatively affected by trade liberalization. Moreover, low-productivity firms are *ex ante* more likely to be taken over because of greater potential efficiency gains (Maksimovic and Phillips 2001). Hence, the passage of BC laws which reduce the threat of takeover should affect them more negatively than high-productivity firms. We thus test whether the negative effect of the

²³ We provide further support for the idea that the FTA's negative impact on accounting performance by using the price-cost margin as the dependent variable. Unreported results confirm the evidence in Guadalupe and Wulf (2010) that more exposure to import tariff cuts indeed leads to a greater decline in the price-cost margin.

interaction between BC laws and trade liberalization on operating returns is mostly prevalent among low-productivity firms.²⁴ We measure firm-level total factor productivity (TFP) by following the semiparametric procedure developed in Olley and Pakes (1996).²⁵ Then, we estimate separate regressions for subsamples of firms with lower and higher TFP than their industry peers in 1984 (Table 5, Columns 1 and 2). The interaction between BC laws and import tariff cuts is negative in both subsamples, but the economic magnitude is more than twice as large for the subsample of low-productivity firms. Our findings thus indicate that low-productivity firms suffered more from the FTA than did other firms and especially so if they were subject to BC laws.

Next, we explore how our results vary depending on the geographic proximity to the Canadian market. Gravity models of international trade imply that the intensity of trade decreases with the distance between the trading partners, so we expect the FTA to have a stronger effect on firms that operate closer to the Canadian border.²⁶ As BC laws were introduced at the level of state of incorporation, we avoid spurious correlation between distance and the quality of governance. We measure proximity to Canada as the distance from the largest city in the firm's state of location to the closest U.S.-Canada border crossing. We then split the sample according to whether the firms are located closer to or farther from the median distance to Canada (300 miles) and analyze separately the effect of BC laws and reduced import tariffs for both subsamples (Table 5, Columns 3 and 4). We find that the combined effect of tariff reduction and BC laws is statistically significant only for those firms located closer to the Canadian border.

4.3. Robustness to industry characteristics

We next explore the robustness of our main result in a number of tests. We start by examining whether import tariffs in fact proxy for some inherent industry characteristics. We then look into whether our assumption of parallel trends holds, and also check results while excluding multisegment firms and firms incorporated in Delaware. Finally, we provide alternative

²⁴ BC laws have a direct effect on firm-level productivity (Bertrand and Mullainathan 2003). We thus sort the firms according to their productivity before the first BC law was passed (in 1984).

²⁵ Our findings are also robust to computing TFP as Solow residuals from a Cobb-Douglas production function estimated with OLS. Untabulated results are available at request.

²⁶ Northern and southern states differ along other dimensions as well. For instance, southern states have laxer employment protection laws (Autor et al. 2004) and may therefore be able to adapt more quickly to increases in competition. Such an explanation is in line with our hypothesis.

computations of standard errors and dependent variables, as well as methods for dealing with outliers.

One concern is that the effect of BC laws could differ across industries for reasons other than competitive pressures. Thus, the reduction in import tariffs might instead reflect some inherent differences across industries that are typically correlated with the protection from foreign competitors. To tackle this issue, we control for a number of industry characteristics as well as for their interaction with the BC law dummy. As we show in Table 6, the inclusion of these controls does not substantially affect our results.

First, industries that are the least competitive globally might be protected by higher import tariffs, yet also be the most affected by the worsening corporate governance. We therefore control for a time-invariant measure of the average import tariffs that a firm faced before the FTA. This variable is related to the static characteristics of the industry such as its global competitiveness. A statistically significant coefficient for the interaction between BC laws and average import tariffs would suggest that the least efficient industries are the most affected by worsening corporate governance. The results are reported in Column (1). This coefficient is not statistically significant, but the interaction between BC laws and the reduction in import tariffs remains significant. Hence, the negative effect stems from changes in competition and not from static industry characteristics.

Second, we provide a specification including the interaction between BC laws and lagged HHI in order to control for the differing effects of BC laws on concentrated versus competitive industries, as documented in Giroud and Mueller (2010). In Column (2) we again find a negative and significant effect for the interaction between BC laws and the tariff cut. The latter result also holds if HHI when estimated contemporaneously.

Third, in Column (3), we follow Guadalupe and Wulf (2010) by including a set of pre-FTA industry characteristics that are typically related to trade protection: skill intensity, capital intensity, and TFP growth over 1986-89, as well as their interaction with the post-FTA dummy. These controls allow us to further absorb the effect of observable industry differences potentially related to the magnitude of the tariffs cut. We find that none of these controls significantly affect our main findings. Finally, in Column (4), we include all controls separately used in Columns (1)-(3) and again find a significant effect for our coefficient of interest.

4.4. Further robustness checks

In Table 7, we assess the robustness of our findings in a number of additional ways. An important concern about our identification strategy is the possible violation of the parallel trends hypothesis concerning the implementation of BC laws and the FTA. Previous literature offers arguments that support the abrupt adoption of both BC laws and the FTA. Romano (1987), who investigates the adoption of BC laws from a political viewpoint, claims that such legislature is typically advocated not by a larger coalition of firms but rather by a single firm facing a threat of imminent takeover. That only a few firms lobbied for BC laws and that they were often adopted during emergency legislative sessions without public hearings should mitigate the concerns for endogeneity (Bertrand and Mullainathan 2003). Moreover, passage of the FTA was highly improbable and unexpected (Guadalupe and Wulf 2010). Its fate was decided in the Canadian federal election, which was won by the Progressive Conservative party, in favor of the FTA, after trailing in the polls to the Liberal party that opposed the agreement. We address these concerns empirically by estimating placebo policy changes three years before their actual passage (Columns 1 and 2). Results indicate that neither placebo BC laws nor the placebo FTA are statistically significant. Their economic effects are also less economically pronounced than our baseline finding in Table 4, Columns (1) and (2). These results confirm that our sample exhibits no diverging trends that could confound our findings.

An additional concern of our specification is that the control variables (e.g. firm size) might themselves be responsive to the policy changes and/or be correlated with omitted factors. In Column (3) we therefore provide the results for a specification that controls only for time and firm fixed effects.

Moreover, since most of the firms in our sample are incorporated in Delaware (see Table 1), our results could reflect some non-governance related changes in the legislature of Delaware-incorporated firms. Yet the results reported in Column (3) show that our findings are robust also to the exclusion of firms that incorporated in Delaware.

Our treatment measuring the reduction in import tariffs relies on the correct assignment of firms to industries. Since we only use the primary segments reported in Compustat for each firm, the FTA treatments might suffer from measurement errors for firms that are active in multiple segments. To address this concern, we restrict our analysis to single-segment firms, as inferred from the number of segments for which Compustat Segments database reports sales. The results

in Column (4) indicate that the interaction between BC laws and reduction in import tariffs is statistically significant at the 10% level and economically relevant.

Additionally, we address the issue of the timing of BC laws. Our baseline results (Table 4) estimate the interaction of an increase in competition with BC laws regardless of whether the BC laws were passed before or after the FTA. As shown in Figure 1, seventeen states (in which 79.1% of our sample firms are incorporated) passed BC laws before the FTA, eight states did so in 1989, while five states passed BC laws in 1990-91. Since we aim to identify how a change in governance affects the response to a subsequent change in competition, our analysis could be biased by including even the few states that passed BC laws after the FTA. Hence, we exclude firms incorporated in states that passed BC laws in 1990 and 1991, and the results, shown in Column (5), are robust to this analysis.

We also provide alternative computations of the standard errors. We estimate our baseline regression by clustering at the four-digit industry level (Column 6), to allow for any intra-industry correlation of residuals induced by the FTA. We adopt treatments on two different dimensions and we are interested in the interaction between them. Thus, since our specification is identified at both the industry and the state of incorporation levels, we employ two-way clustering at the levels of industry and state of incorporation. These results are reported in Column (7). In untabulated regressions, we also cluster residuals at the levels of firm and at the state of location. Although the precision of our estimates varies, the interaction between BC laws and reduction in import tariffs remains statistically significant at conventional levels. The interaction coefficient remains significant at the 5% level even when we compute standard errors by block-bootstrap using 200 replications (Bertrand et al. 2004).

Finally, we adopt several ways to deal with outliers. In our baseline estimates, we trim 1% at each tail of the ROA distribution. We obtain similar results, however, if we exclude firms with assets of less than \$1 million, if we trim 1% at each tail of the distribution of total assets, and if we estimate a median regression (including industry fixed effects and bootstrapping standard errors using 100 replications). Our results are also robust to the adoption of alternative measures of performance. These include sales divided by assets, net profit margin (computed as EBITDA divided by sales), ROA after depreciation (computed as operating income after depreciation

divided by total assets), and ROE (computed as EBITDA divided by book value of common equity).²⁷

4.5. Alternative measures of corporate governance and import competition

In addition to using BC laws to identify variations in corporate governance, we use a firm-level measure of corporate governance to show that the FTA had a more negative effect on the worse-governed firms. Hartzell and Starks (2003) find that institutional ownership concentration is associated with greater pay-for-performance sensitivity and lower executive compensation, both of which reduce agency problems between shareholders and management. Furthermore, Ferreira and Matos (2008) show that institutional investors are more likely to invest in better-governed firms. Nikolov and Whited (2009) further claim that, given the measurement problems associated with other proxies, institutional ownership should be the preferred proxy for firm-level corporate governance. Following these studies, we adopt the fraction of institutional ownership in the firm as a proxy for the quality of its corporate governance. We estimate an equation in which *Import tariff cuts_{ij}* is interacted with the fraction of firm's stock owned by institutional investors. Controlling for firm fixed effects allows us to look at within-firm variations in institutional ownership.

The results of this estimations are reported in Table 8.²⁸ First, Column (1) shows that there is a positive relation between profitability and ownership by institutional investors. Moreover, in support of our hypothesis, we find that the coefficient for *Import tariff cuts_{ij}* is negative whereas the interaction term for this variable and institutional investor ownership is positive. Thus we

²⁷ We conduct a number of additional robustness checks that are available upon request. First, we compute the average tariffs for the entire period before the FTA was passed (from 1976 to 1988). In computing the average tariff for the pre-FTA period, we had to exclude one industry in 1978 that reported an implausibly high tariff. Second, we restrict the sample to firms that are present during the entire period from 1981 to 1995 (four years before the first BC law until four years after the last BC law), in order to purge the sample of entry and exit effects (cf. Giroud and Mueller 2010). The interaction of interest is economically close to our baseline finding, although its significance is reduced to the 14% level (likely due to a smaller sample size). Third, we adopt a symmetric window around the FTA passage (1982-95). Fourth, we restrict the analysis to manufacturing sectors (SIC between 2000 and 4000). Fifth, we only consider only the cases involving tariff reductions that are not extreme (i.e. strictly larger than 0% and lower than 8%). Sixth, we control for leverage and/or cash holdings. All results confirm our previous findings, in both economic and statistical terms. Also, we have included the square of reduced import tariffs and its interaction with BC laws, and our main results remain largely unchanged. The latter interaction of BC laws with the squared term of reduced import tariffs is not significant by itself, a result that implies the absence of the non-linear effect of reduced import tariffs on operating returns.

²⁸ Our main specification restricts the sample of firms with a non-missing value for extent of institutional ownership; however, our results are robust to using the full sample where the missing values of institutional ownership are replaced with 0.

find that reduced tariffs have a negative effect only for the firms with a small institutional investor base, i.e. firms with worse governance.²⁹

Finally, we employ import penetration at the industry level as an alternative measure of import competition, estimating an equation in which import penetration is interacted with the dummy indicating the passage of BC laws. Import penetration is defined as the ratio of imports to imports plus domestic production in a given industry and year. Because import penetration can be endogenous to an industry's profitability, we follow Bertrand (2004) and instrument it with the weighted average of the real exchange rates of the importing countries. In particular, we construct the weights for each industry from the shares of each foreign country's imports in the total imports of that industry. As in Bertrand (2004), we fix these shares of foreign country's imports at their year 1981 levels. We then use both the current and one-year lagged weighted real exchange rates as instruments for import penetration and use the interaction of these exchange rates with BC laws as an instrument for the interaction of import penetration with BC laws. The results reported in Column (2) show that greater foreign competition reduces profitability, although it mainly affects the profitability of firms with worse corporate governance.

Although the results using alternative measures are in line with our main findings, we prefer to use the FTA and the passage of state-level BC laws as the ways to identify our effect because they provide more exogenous variations in corporate governance and in import competition.

5. Market values

We complement our results on operating performance by studying stock market reactions to the FTA. If corporate governance indeed reduces the readiness to react to competition and if markets efficiently incorporate this information, then a stock's market value should decrease more for firms with worse corporate governance than for firms with better governance following the implementation of the FTA. We first provide results for the panel estimation of market-to-book ratios. We then conduct an event study on how announcement of the results of the Canadian federal election results, which significantly increased the FTA's probability of being adopted, affected the stock prices of U.S. firms.

²⁹ Our results are robust to using membership in the S&P500 index (as in Aghion et al. 2009) to instrument the fraction of institutional ownership.

5.1. Market-to-book ratios

Our first dependent variable is the ratio of market value of equity to book value of equity (the MB ratio). We again control for firm fixed effects, which absorb firm-level differences in valuation; for average MB ratios of industry and state of operation, which capture industry and local economy trends; and for time-fixed effects, which control for general market movements. The resulting analysis can therefore be interpreted as estimating the effect of BC laws and reduced tariffs on long-term equity returns. The results are reported in Table 9. In Column (1), we report estimates using the same specification as in the ROA regressions. We find that the coefficient for the interaction between BC laws and reduced tariffs is negative and significant: firms exposed to the worse governance experience a decrease in market value following the increases in competition. In Columns (2)-(4) we sequentially include other controls, typically associated with market value: ROA, extent of leverage and ratio of R&D expenditures to sales. We use one-year lagged values in order to reduce the concern that these controls are simultaneously affected by the FTA directly. In Column (5), we include all controls together. Again, our estimates indicate a significant decrease in the market value of firms that are both subject to increasing competitive pressures and incorporated in states with BC laws.

A consistent finding for the market value of equity also eliminates an additional concern regarding our results on profitability. One could argue that firm's investment may follow decreasing returns to scale, in which case a firm could continue to expand even if its average ROA declines. If either the passage of BC laws or the reduction in import tariffs increases the sizes of firms, we could have misinterpreted our findings on ROA. However, the decline in market values of firms incorporated in states with BC laws runs counter to such interpretation of our profitability results.

5.2. Event study

Accounting-based measures can be manipulated in response to worsened corporate governance and the competitive shock. Moreover, the annual panel data cannot fully absorb the endogeneity of the phase-out schedules of tariffs. To mitigate these concerns, we perform an event study to test whether the FTA's adoption had a different immediate impact on the stock prices of U.S. firms incorporated in states with and without BC laws. Morck et al. (2000) and Breinlich (2010) summarize the political events around the implementation of the FTA. Contrary to the political

process in the U.S., the debate about the adoption of the FTA was very contentious in Canada. After the agreement was signed between U.S. and Canada in October, 1988, the legislation to implement it stalled in Canada's Senate. Brian Mulroney, Prime Minister at the time, called federal election for November 21, 1988. The FTA was the main issue in the election and the outcome of the election was highly uncertain. Although Progressive Conservatives won the majority, a Gallup poll published two weeks before the election still showed a 12% lead in favor of the Liberal Party, which opposed the implementation of the FTA. The uncertainty surrounding this election offers an ideal context for conducting an event study that examines the U.S. stock market reaction to the FTA.

First, since all firms within the same industry are affected to a similar extent and since their abnormal returns are likely to be correlated (MacKinlay 1997), we form industry-level portfolios. Second, for each of these portfolios we estimate cumulative abnormal stock returns over several event periods surrounding the election date: [-20,-1], [-5,-1], [-1,0], [0,0], [0,1], [0,3], and [0,5], where [-1,0] for example, denotes a two-day event window. Cumulative abnormal returns (CARs) are calculated as the difference between actual returns (extracted from CRSP, the Center for Research in Security Prices) and expected returns, where the latter are projected using a market model with the parameters estimated from 241 to 41 trading days prior to November 21, 1988. We then test whether the average CARs of these 326 industry portfolios are statistically different from zero for each event window.

The results are given in Table 10. Columns (2)-(4) confirm that a greater reduction in tariffs led to a decline in stock prices, a finding that validates our identification strategy. For instance, the six day return was -1.25% for firms operating in industries subject to large tariffs reductions but was not significantly different from zero for the other firms.

Finally, in the same manner as for the industry portfolios, we form portfolios at the level of state of incorporation, estimate cumulative abnormal stock returns over the same event windows and test for whether the average CARs of these state-level portfolios are statistically different from zero for each event window. In Columns (5)-(7), we document that firms incorporated in states subject to BC laws experienced a larger decline in stock prices. A six day return was -1.44% for firms subject to BC laws but not significantly different from zero for other firms. Overall, the event study evidence confirms our previous findings that firms incorporated in

environments associated with worse corporate governance were less prepared to face an increase in competitive pressures.

6. Exporters

FTA affected both import and export side of trade. We thus separately look into how firms were affected by the reduction in the export tariffs. We first distinguish between exporters and non-exporters. We expect the results for these two groups to differ for two reasons. First, exporters might have benefited from the expanded business opportunities in Canada due to the reduction in export tariffs. Second, exporting firms are typically associated with a high level of productivity (e.g. Clerides et al. 1998, Delgado et al. 2002; Bernard and Jensen 2004), hence the effect of import tariffs should be lower for these firms.³⁰ To account for both effects, we estimate separate regressions for exporters and non-exporters, including the reduction of both import and export tariffs as well as their interactions with BC laws. It is important for our identification that the firms in our sample do not change their exporting status after 1988 – in other words, that there is no effect from the FTA on the extensive margin to export.

Results, reported in Table 11, Columns (1)-(3) show that our previous findings on import tariff cuts are concentrated in the sample of non-exporters. The interaction between BC laws and import tariffs is both significant (at the 10% level) and economically large for this group of firms. On the contrary, neither export tariffs cut, nor its interaction with the BC laws are significant at conventional levels. Thus, non-exporting firms were negatively affected by the FTA mostly through the increase in competition, and this negative impact was especially strong in environments characterized with poor corporate governance.

On the contrary, we find that for exporters the reduction in export tariffs is positive and significant. This result suggests that exporters were able to benefit from the cut in export tariffs to Canada, which expanded their product market. Moreover, we find that the interaction between the cut in export tariffs and BC laws has a negative coefficient of almost similar size, indicating that even though exporters were positively affected by the FTA, worse corporate governance impaired their ability to benefit from the increased opportunities for exporting to Canada.

³⁰ Another reason why exporters might have been less affected by reduced import tariffs is that their production inputs are more likely to be imported (Bernard et al. 2009), which means that exporters are more likely to benefit from the reduction in import tariffs on their supplies.

Due to the data limitations we are not able to distinguish whether the firm is in fact exporting to Canada, or it only exports to the other countries. However, we can look whether our results differ across industries. In particular, some industries have higher fraction of exports to Canada than other industries, and thus we sort exporting firms according to whether their industry mainly exports to Canada. We use data from Schott (2008) and consider industries to be prone to exports to Canada if their share of exports to Canada over all exports in 1985 was larger than 15%. This figure roughly corresponds to the sample median. When we split our sample of exporters, we indeed find that export tariff reduction had a positive effect for exporters that operate in the industries with large export share to Canada (Columns 4 and 5).

7. Why does governance matter?

So far we have shown that worse corporate governance amplifies the negative effect of an increase in competition on operating and stock market performance. These results can be explained in two ways. First, managers that are protected from hostile takeovers can become entrenched and thus exert less effort while an increase in competition would likely require additional effort to remain competitive in the market and to sustain profits. For this reason, firms with worse governance should be the ones affected more negatively by the FTA. Second, managers in firms with worse governance could be more constrained than those in better-governed firms what regards the actions that they can take. Thus, even though these managers are willing, they may be unable to respond adequately to increased competition.

We examine whether the performance of worse-governed firms deteriorated more after the FTA solely because of unwillingness to adapt, or rather also because some constraints jeopardized firm's ability to do so. In particular, we look at one reason why corporate governance is important for how firms react to an increase in competition: a close relationship between corporate governance and financial constraints. Because increased competition requires firms to reorganize their activities, access to external finance may play an important role in adapting to the FTA. Rajan and Zingales (1998) show that, as an industry becomes more dependent on external finance, the availability of outside capital becomes more important. Also, greater credit constraints limit a firm's ability to react to trade liberalizations (Manova 2008). Yet the quality of corporate governance establishes the terms on which firms can raise external funds and that agency problems increase the cost of external finance. In Appendix 2 we discuss

one explanation for why external finance activity was important after the FTA: industries that raised more external finance were better able to resist price pressure.

Our procedure is based on three different tests. First, we link our findings on profitability to financial constraints; that is, we check whether firms that were *ex ante* more financially constrained were more affected by the governance and trade shocks. Second, because financing decisions are endogenous to competition (Phillips 1995; Kovenock and Phillips 1997), we look at an exogenous increase in the need for finance. We want to see whether the latter mainly affected firms exposed to both BC laws and the trade shock, namely, those that we claim to be more financially constrained. In particular, we investigate effects of a sharp spike in oil prices during the first Gulf War in late 1990. Because this oil price spike unexpectedly drained resources of firms with negative exposure to oil prices, the event provides an exogenous source of variation in the need for external financing. Third, we directly test whether firms exposed both to BC laws and to reduced import tariffs actually raised less external finance.

7.1. Financial constraints and performance

First, we check whether firms operating in industries more likely to require external finance suffered more in terms of operating performance. We therefore classify firms based on whether the industry in which they operate was above or below the across-industry median of external financial capital raised in 1984 (i.e., one year prior to passage of the first BC law).³¹ Our measure is similar to Rajan and Zingales's (1998) proxy for an industry's financial constraints. The results, which are reported in Columns (1) and (2) of Table 12, indicate that the negative effect on operating returns of reduced import tariffs was mainly concentrated among firms incorporated in states with BC laws *and* operating in industries that are highly dependent on external finance.³²

Second, we split the firms according to whether they had an S&P long-term debt rating in 1985. Firms can issue public debt only if they have a bond rating and thus access to this additional source of capital reduces financial constraints. Results from these regressions, reported in Columns (3) and (4), also show that the combined negative effect of the FTA and

³¹ The average import tariffs were not statistically different for any of the pairs of subsamples studied in this section.

³² An industry's net change in capital can be assessed by balance sheet measures or instead by security issuances reported in the SDC New Issues database. Our results are consistent using either method. For the sake of brevity, we report results only for a sorting based on the balance sheet measures.

worse corporate governance on operating returns was concentrated among firms that did not have credit rating, i.e. those that were ex ante more financially constrained firms.

Finally, we use firm size and age as indirect measures of financial constraints. As discussed in Almeida et al. (2004), smaller and younger firms are less well known and more vulnerable to capital market imperfections. In Columns (5) and (6), we estimate separate regressions for firms that are smaller or larger than their industry peers. Small (large) firms are defined as firms having assets below (above) the industry median in 1984, one year before the passage of the first BC law. We find that the impact of BC laws is close to zero and insignificant for larger firms, perhaps because their size already rendered takeovers less likely. In contrast, the BC laws had a large and negative effect on the ROA of smaller firms. Although the coefficient for the interaction between BC laws and the FTA is negative and significant at conventional levels for both large and small firms, its economic magnitude is much greater for smaller firms. This result indicates that smaller firms subject to worse corporate governance were most negatively affected by an increase in competition. Columns (7) and (8) report similar results for younger and older firms, again defined relative to the industry medians in 1984.

So far we established that interactions between corporate governance and ex ante financial constraints were important factors in firms' responses to increased competition. We now look more carefully at the identification to establish whether financial constraints were one of the main channels through which corporate governance affected the reaction of firms to the FTA.

7.2. Exogenous variation in financing needs

Here we exploit an exogenous variation in the financing needs of U.S. firms. We look into the first Gulf War which began with the invasion of Kuwait by Iraqi armed forces on August 2, 1990, and resulted in a spike in the price of oil that did not subside until U.S. military action commenced in January, 1991. Our test builds on the notion that firms more negatively exposed to oil prices experienced an unexpected drain of resources following the oil price spike.³³ The production costs of such firms might have been tied to oil, or perhaps their business activities relied on discretionary consumer spending and were thus exposed to the inflation shocks. Hence, the effect of the resulting unexpected change in financing needs differed across firms as a

³³ Lamont (1997) showed that 1986 oil price shock affected financing costs for the firms dependent on oil.

function of their exposure to oil prices. Of these firms, we assume that the least financially flexible ones were most hard hit by the oil price spike.³⁴

This setting offers an excellent opportunity to test whether a combination of BC laws and the trade shock³⁵ had an effect on financial constraints. In particular, we test whether the effect on ROA in 1990 was stronger for firms that experienced a combination of (1) large tariffs cut; (2) passage of BC laws; (3) negative exposure to the oil price shock. If the interaction between BC laws and reduced tariffs had no effect on financial constraints, then we should expect the triple interaction *not* to be significant.

We estimate the firm's exposure to oil prices by using the correlation of daily stock returns and changes in the WTI crude oil spot price in 1989. As such, we follow Adler and Dumas (1984) who suggest inferring a firm's exposure to currency risk from how its stock price correlates with exchange rate changes. For the sake of easier interpretation, we take the negative value of this correlation as the firm's exposure to the oil price spike. We estimate the following regression:

$$\begin{aligned}
 ROA_{ijkt} = & \alpha_i + \alpha_t + \beta_1 \text{Import Tariff cuts}_{jt} + \beta_2 BC_{kt} + \beta_3 BC_{kt} \times \text{Import Tariff cuts}_{jt} + \\
 & + \beta_4 \text{Oil spike exposure}_{it} + \beta_5 BC_{kt} \times \text{Oil spike exposure}_{it} + \\
 & + \beta_6 \text{Import Tariff cuts}_{jt} \times \text{Oil spike exposure}_{it} + \\
 & + \beta_7 BC_{kt} \times \text{Import Tariff cuts}_{jt} \times \text{Oil spike exposure}_{it} + \gamma' X_{ijkt} + e_{ijkt}
 \end{aligned} \tag{2}$$

The term *Oil spike exposure_{it}* is equal to the correlation between the oil price and the firm's stock price (estimated as just described) in 1990 and is equal to 0 in all other years. The remaining variables are as defined previously. The coefficient for our key variable of interest here, $BC_{kt} \times \text{Import tariff cuts}_{jt} \times \text{Oil spike exposure}_{it}$ measures whether *Oil spike exposure_{it}* affects performance differently depending on $BC_{kt} \times \text{Import tariff cuts}_{jt}$. The null hypothesis is that $BC_{kt} \times \text{Import tariff cuts}_{jt}$ does not proxy for financial constraints and so an increase in financing needs affected firms' operating returns uniformly, (i.e., that $\beta_7 = 0$). However, we would expect a negative value of β_7 if the interaction between worse governance and increased competition led

³⁴ These claims are in line with the anecdotal evidence. For instance, in an article entitled "Junk Defaults May Rise in U.S. Recession Climate", the news service Reuters reported on August 8, 1990 that "If oil goes to 30 dollars a barrel and inflation rises in excess of six pct, this will have a general negative impact on the junk bond market" and that "Analysts said that highly leveraged credits with limited financial flexibility will be hard hit as cash coverages for debt repayment declines."

³⁵ In unreported results, we study the dynamics of the FTA effect and find that it does not diminish over the first years following the adoption. Here we exploit this finding that the trade shock had not yet been fully absorbed by U.S. firms in 1989.

to greater financial constraints, and thus the firms with more binding financial constraints would experience a more negative effect on performance in response to increased financing needs.

Table 13 reveals a negative and statistically significant effect on ROA for firms that were subject to BC laws and exposed both to the oil shock and the trade shock, in other words for firms that needed finance the most but were the least able to raise it. The result holds if we include our usual control variables as in our baseline specification, or if we control for the export tariff cut.

As coefficient for $BC_{kt} \times Import\ tariff\ cuts_{ij}$ is not significant in these regressions, one could worry that our baseline estimations in Section 4 in fact identify an effect of oil spike rather than the trade shock. However, it should be noticed that the analysis here is performed on a sample of firms that is smaller than that used for previous estimations, because continuous stock price data are needed to estimate *Oil spike exposure_{it}*. In order to perform the analysis on the full sample, we replace missing values of *Oil spike exposure_{it}* with zero. The results reported in Column (4) show that coefficients for both $BC_{kt} \times Import\ tariff\ cuts_{ij}$ as well as for its interaction with *Oil spike exposure_{it}* are significant and negative, confirming that worse governed firms were affected most by the trade shock but their performance further deteriorated in 1990 if they were negatively exposed to the oil price changes. The additional drop in ROA for a firm with an average oil spike exposure amounted to 0.5%.

In unreported results we also perform splits similar to those used in our baseline regressions, thereby checking whether β_7 is more negative for firms that are more affected by the trade shock. Indeed, the effect is again concentrated among non-exporters and firms closer to Canada. Moreover, we find a greater effect for firms that are ex ante more financially constrained firms (i.e. firms in industries characterized by higher levels of external financing activity as well as non-rated and younger firms).

7.3. Actual external financing activity

Finally, we look at the actual issuance of new external capital. This analysis does not distinguish between firms that have more constrained supply of finance and firms that demand less external

finance. Yet it provides supporting evidence that after the trade shock external financing activity differed for better- and worse-governed firms.³⁶

Table 14, Column (1), gives estimates for a specification in which the dependent variable is total net change in capital as a fraction of the firm's book value of assets. In addition to the usual explanatory variables adopted in our profitability regressions, we control for the beginning-of-year leverage as well as for the general issuance activity by industry and state of location. First, we show that being subject to BC laws reduces fund-raising.³⁷ We also show that this reduction is larger for firms that face the trade shock. In fact, firms incorporated in states *without* BC laws increase their external financing activity in response to reduced import tariffs, whereas firms in states *with* BC laws make not changes in that regard. Columns (3) and (4) report separate results for the net changes in equity and debt. Because BC laws mainly exacerbate agency problems between managers and shareholders (not between managers and creditors), our results are stronger for net changes in equity.

Finally, as a robustness check we collect data on new capital raised from the SDC New Issues database. In particular, we consider all types of securities (bonds, secondary equity offerings, and other type of securities) that firms issue over the year and that are reported in the database.³⁸ Our main dependent variable is the proceeds from the issue of securities as a fraction of total assets in the preceding year. We restrict this variable to lie between 0 and 1. If SDC New Issues does not report data on the issuances of a particular firm, we assume that no issuances were made by that firm. Estimates, reported in Column (5), confirm our previous results; following a large reduction in tariffs, a firm is less likely to raise funds if it is incorporated in a state with BC laws.

8. Conclusion

We investigate how the quality of corporate governance affects a firm's performance following an increase in foreign competition. Our empirical approach is based on the intersection of two

³⁶ In untabulated results, holding the firm effects fixed, we find a positive and significant (at 1%) association between ROA and the external financing activity.

³⁷ Consistently with this argument, Qiu and Yu (2009) find that the cost of new debt rose after the passage of BC laws.

³⁸ One concern is that SDC New Issues does not report borrowing from banks. Therefore, even if firms with worse corporate governance raise less capital via the publicly listed securities, they could substitute it with more capital from the banks.

policies implemented in the United States at the end of 1980s. On the one hand, business combination laws reduced the threat of hostile takeovers, thus rendering ineffective an important corporate governance device: the market for corporate control. On the other hand, the Canada-U.S. Free Trade Agreement increased foreign competition for U.S. manufacturing firms as tariffs on Canadian imports were abolished. We adopt a combination of difference-in-differences models based on the observations that (i) states passed BC laws at various times (mostly before the passage of the FTA), while (ii) because of the FTA industries experienced different levels of reduction in import tariffs – and thus varying increases in foreign competition.

Our main finding is that corporate governance has a positive effect on a firm's readiness to compete in the product market. The exposure to BC laws magnifies the negative effect of the import tariff cuts on operating returns and firm value. Furthermore, we find that the negative effect of BC laws on operating returns following the trade shock is predominantly concentrated among non-exporters, low-productivity firms, and firms located closer to the Canadian border.

Our evidence is consistent with the “quiet life” notion that managers in firms with worse governance are unwilling to undertake the actions needed to face an increase in competition. We also provide evidence that worse governance exacerbates financial constraints that hamper the ability to react to competitive shocks.

In the face of stronger competition, an increase in firm-level productivity can stem either from a uniform rise in the productivity of all firms or from forcing the least efficient firms to exit the market. Worse-governed firms could thus be less ready to adjust their actions or alternatively they might have a higher probability of going bankrupt. Our findings focus on worse-governed firms improving less than their peers.³⁹ However, future research could further discriminate between these two explanations and explore the role of other corporate governance mechanisms.

³⁹ In fact, after the passage of the FTA we observe somewhat more bankruptcy filings in the states with BC laws. According to the data from BankruptcyData.com and the UCLA-LoPucki's Bankruptcy Research Database, there were 8 filings for Chapter 11 by our sample firms incorporated in states with BC laws (0.24% of the sample firms) versus 20 filings in states without BC laws (0.14%) over 1983-88. However, for 1989-93 there were 94 Chapter 11 filings in states with BC laws (0.70%, an increase by 2.9 times) versus 9 such filings in states without BC laws (0.37%, an increase by 2.6 times). Such anecdotal evidence suggests that the FTA may have had a greater effect on the exit of firms with worse corporate governance than on those with the better governance.

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Appendix 1. List of variables

Name of the Variable	Description	Source
<i>Governance Characteristics</i>		
BC (or BC law present)	Dummy variable, set equal to 1 starting from the year when the BC law was passed by the state where the firm is incorporated (and to 0 otherwise); see Table 1 for the listing of passage dates.	Thompson Financial CDA/ Spectrum
Institutional ownership	Fraction of firm's outstanding shares that are held by institutional investors.	
<i>Competition Variables</i>		
Pre-1989 tariffs	Average tariffs on imports of Canadian goods during the period 1986-88 for each four-digit SIC industry. For each year tariffs are estimated as the total duties paid across all sub-industries (of each four-digit SIC industry) divided by the total customs value of imports.	UC Davis Center for International Data
Import tariff cuts	Change in the tariffs on imports of Canada. Before 1989 it is equal to 0, in and after 1989 it takes a positive value equal to pre-1989 tariffs (see description of Pre-1989 tariffs variable).	UC Davis Center for International Data
Export tariff cuts	Change in the tariffs on exports of U.S. goods to Canada. Before 1989 it is equal to 0, in and after 1989 it takes a positive value equal to pre-1989 export tariffs. Pre-1989 export tariffs are estimated as the average over 1986-88 for each four-digit SIC industry.	Trefler (2004)
High (resp. low) tariff	Dummy, set equal to 1 if Pre-1989 tariffs exceeds (resp. does not exceed) 0.033 and set to 0 otherwise.	UC Davis Center for International Data
HHI	Herfindahl-Hirschman index, computed as the sum of squared market shares of all publicly listed firms (based on sales), in a given three-digit SIC industry in each year.	Compustat (or U.S. Census)
Import penetration	Dollar value of imports divided by the sum of dollar value of imports plus the dollar value of domestic production in a given four-digit SIC industry.	Schott (2008)
Source-country weighted real exchange rate	Weighted average of real exchange rate of the U.S. dollar versus other currencies. For any given four-digit SIC industry, the weights are the shares of each foreign country's imports in the total imports of that industry, fixed in 1981.	Datastream
PPI	Annual average (M13) of the Producer Price Index for a given four-digit SIC industry.	Bureau of Labor Statistics

<i>Firm Characteristics</i>		
Ln (age)	= $\ln(\text{age}+1)$, where <i>age</i> is the number of years that the firm has been in Compustat.	Compustat
Asset size	= $\ln(at)$, where <i>at</i> is the size of assets, in millions of U.S. dollars.	Compustat
ROA	= ebitda/at_{t-1} , where <i>ebitda</i> is the earnings before interest, taxes, depreciation and amortization and where <i>at</i> is the size of assets.	Compustat
Leverage	= $(dlc+dltt)/at$, where <i>dlc</i> is the amount of financial debt due in one year, <i>dltt</i> is the amount of long-term financial debt and <i>at</i> is the size of assets.	Compustat
Market-to-book	= $(prcc_f \times cshtr_f)/ceq$, where <i>prcc_f</i> is the market price of a common share at the end of the fiscal year, <i>cshtr_f</i> is the number of common shares outstanding and <i>ceq</i> is the book value of equity. This variable is limited to the interval between 0 and 10.	Compustat
R&D/Sales	= $xrd/sale$, where <i>xrd</i> is the amount of R&D expenditures and <i>sale</i> denotes the annual sales.	Compustat
Large (resp. small) firm	Dummy variable, set equal to 1 if the firm's asset size of the firm is greater (resp. lower) than the median size of the firms within the firm's three-digit SIC industry in 1984 and set to 0 otherwise.	Compustat
High (resp. low) TFP firm	Dummy variable, set equal to 1 if the firm's total factor productivity (TFP) of the firm is greater (resp. lower) than the median TFP of the firms within the firm's three-digit SIC industry in 1984 and set to 0 otherwise; here TFP is estimated using the procedure described by Olley and Pakes (1996). The firm-level variables used to compute TFP are the logarithms of sales, employment, capital expenditures, and property, plants and equipment.	Compustat
Young (resp. old) firm	Dummy variable, set equal to 1 if the firm's age is greater (resp. lower) than the median within the firm's three-digit SIC industry in 1984 and set to 0 otherwise.	Compustat
Closer to (resp. farther from) the border	Dummy variable, set equal to 1 if the distance from the principal city of the state in which the firm's headquarter is located is less (resp. more) than 300 miles from the nearest road crossing of U.S.-Canada border and set to 0 otherwise.	Various
Exporters (resp. non exporters)	Dummy variable, set equal to 1 if the firm reports an average of at least (less than) 1% of export to sales and set to 0 otherwise.	Compustat
Industries with high (resp. low) exports to Canada	Dummy variable, set equal to 1 if the industry's share of exports to Canada over all exports in 1985 is higher (resp. lower) than 15%.	Schott (2008)
<i>State (Industry) Trends</i>		
State-year	Average of the dependent variable across all firms in the same state of location of the firm, where averages are computed excluding the firm in question.	Compustat
Industry-year	Average of the dependent variable across all firms in the same four-digit SIC industry of the firm, where averages are computed excluding the firm in question.	Compustat

<i>Financing Variables</i>		
Net change in capital	$=((ddl_t + dltt_t) - (ddl_{t-1} + dltt_{t-1}) + (sstk - prstk)) / at_{t-1}$, where <i>ddl</i> is the amount of financial debt due in one year, <i>dltt</i> is the amount of long-term financial debt, <i>sstk</i> is the amount of newly issued common and preferred stock, <i>prstk</i> is the amount of repurchased common and preferred stock and <i>at</i> is the size of assets. This variable is limited to the interval between 0 and 1.	Compustat
Net change in equity	$= (sstk - prstk) / at_{t-1}$, where <i>sstk</i> is the amount of newly issued common and preferred stock, <i>prstk</i> is the amount of repurchased common and preferred stock and <i>at</i> is the size of assets. This variable is limited to the interval between 0 and 1.	Compustat
Net change in debt	$=((ddl_t + dltt_t) - (ddl_{t-1} + dltt_{t-1})) / at_{t-1}$, where <i>ddl</i> is the amount of financial debt due in one year, <i>dltt</i> is the amount of long-term financial debt, and <i>at</i> is the size of assets. This variable is limited to the interval between 0 and 1.	Compustat
High (resp. low) capital intensive industry	Dummy variable, set equal to 1 if the four-digit SIC industry's net change in capital is greater (resp. lower) than the median net change in capital across all industries in 1984 and set to 0 otherwise.	SDC, Compustat
Bond rating	Dummy variable, set equal to 1 if, in 1985, the firm has been assigned a long-term bond rating by Standard & Poors and set to 0 otherwise.	Compustat
Oil spike exposure	Negative of the correlation between the daily returns on a firm's stock price and changes in the WTI crude oil spot price, where correlation is estimated over 1989.	CRSP, Datastream

Appendix 2. External finance and product prices

We give one example of how resistance to an increase in competition is related to external finance. As shown by Chevalier (1995), the financial constraints of some players can lead to price pressures by their rivals and thus to a fall in the price levels. We show that the industries that raised more capital following the passage of the FTA experienced less price pressure from the increased foreign competition. In contrast, industries that did not increase capital (presumably because of worse corporate governance) in the face of a tariff drop did not see a corresponding decrease in their products' price levels.

We look into the impact of the FTA on the Producer Price Index (PPI) of each four-digit SIC industry.⁴⁰ We retrieve industry-level PPI from the U.S. Bureau of Labor Statistics and use the annual average as our variable of interest. We regress PPI on *Import tariff cuts_{ij}*, controlling for industry and time fixed effects as well as for the four-digit industry HHI (computed by the U.S. Census on the universe of private and public firms). For purposes of our analysis, we retrieve the HHI for the years 1977, 1982, 1985, and 1992; for the missing years, we use the values from the last year available. Our goal is to investigate whether or not the effect of the FTA on prices differs according to the amount of capital raised by the firms in each industry, (as retrieved from SDC New Issues database). We normalize the capital raised by industry size which we proxy using the value of total industry shipments in that particular year. In Columns (1) and (2) of Table A1, we show data for two subsamples created using the total amount of new capital raised from 1989 through 1995 and normalized by the value of total shipments in the industry in 1989. We find that the negative reaction of the FTA on price levels was present only in industries that raised less capital. In particular, the average tariff reduction of 3.3% resulted in about a 0.4% decline in the prices of domestic producers in industries that did not raise capital. This evidence demonstrates that after the FTA there was a link between financing and the price pressures across industries.

One concern is that firms in some industries might have had high rents before the FTA, accumulating these rents over time and so avoiding the need to raise external finance. Although the FTA could have reduced these rents via price pressure, these firms may still have been in no

⁴⁰ We prefer using Producer Price Index to using the Consumer Price Index (CPI) because the former takes into account only those prices charged by the domestic firms. Also, PPI excludes taxes whereas CPI measures the final prices (including taxes) faced by the consumer.

need of additional capital. We expect such cases to be prevalent in more concentrated industries. Although this concern is already mitigated in Columns (1) and (2) by inclusion of the HHI as the control variable, in Columns (3)-(6), we conduct the same analysis after further splitting the sample into concentrated (above the median HHI) and competitive (below the median HHI) industries. Our results indicate that the FTA's effect on prices is present only in the sample of competitive industries with low levels of external financing, which contradicts this alternative explanation.

Overall, these results are consistent with our view of the financing channel as an important mechanism behind our main findings.

Figure 1. Sequence of BC law legislation with respect to the FTA

This figure shows the cumulative number of states and firms subject to BC laws. The vertical line in 1989 indicates passage of the FTA.

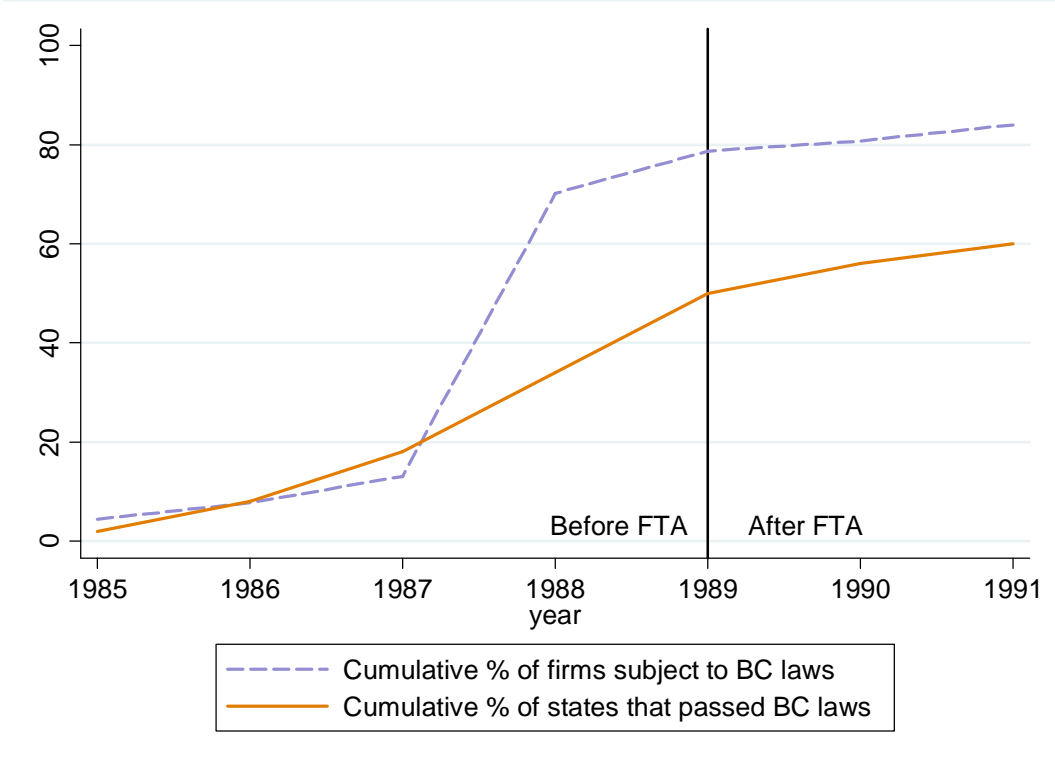


Figure 2. Identification

This figure depicts our identification strategy.

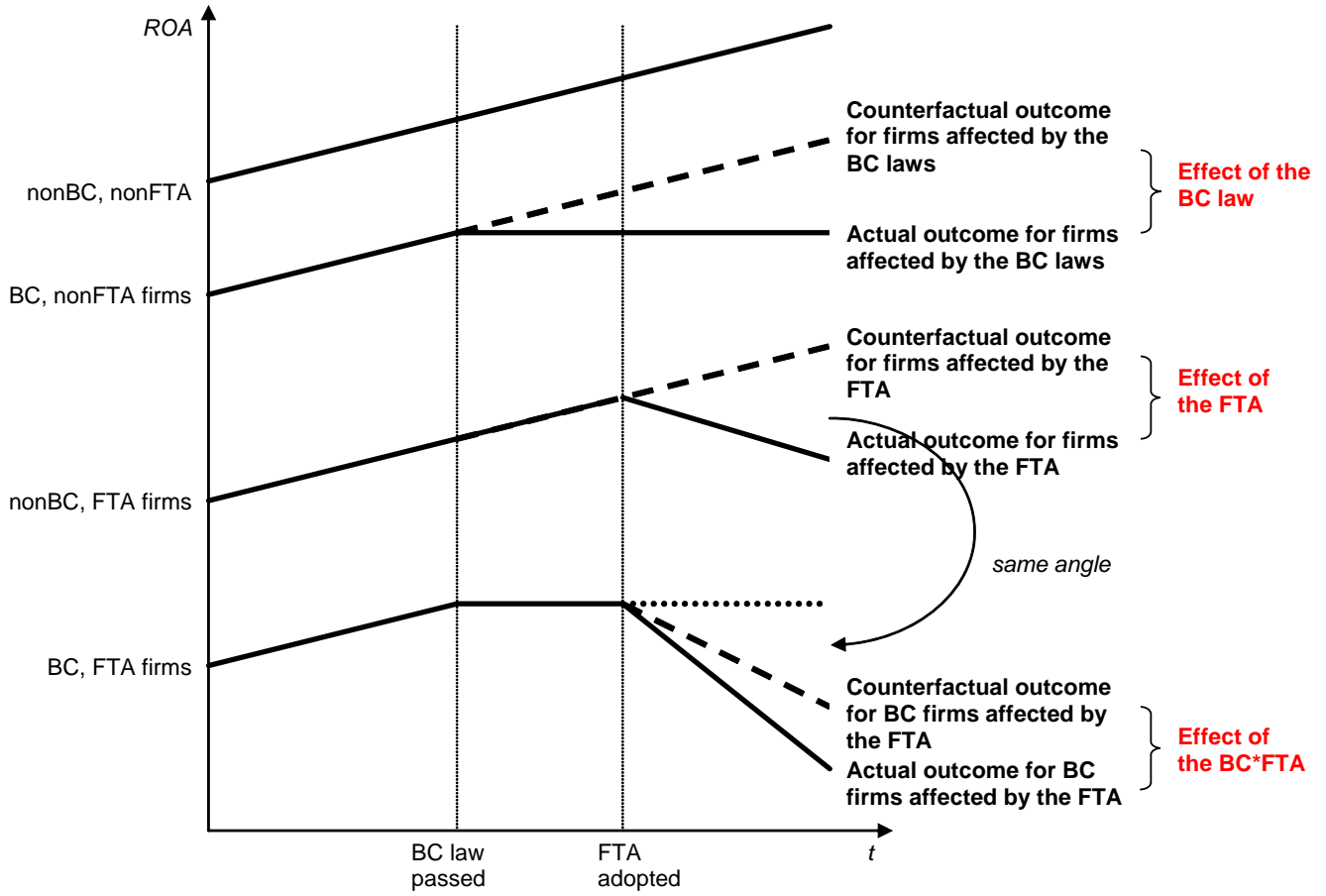


Table 1. States of incorporation and states of location

This table shows the number of firms by state of location (state in which a firm's headquarter is located) and incorporation. "BC year" is the year in which a business combination law was passed in the state.

State	BC year	Number of firms		Number (%) of firms incorporated in...					
		State of incorporation	State of location	State of location	(%)	Delaware	(%)	Other states	(%)
Delaware	1988	1956	5	5	100.0	0	0.0	0	0.0
California		199	667	184	27.6	423	63.4	60	9.0
New York	1985	158	297	103	34.7	173	58.2	21	7.1
Colorado		115	160	70	43.8	68	42.5	22	13.8
Minnesota	1987	112	138	96	69.6	37	26.8	5	3.6
Massachusetts	1989	103	199	87	43.7	102	51.3	10	5.0
Nevada	1991	89	18	7	38.9	6	33.3	5	27.8
Texas		83	359	65	18.1	220	61.3	74	20.6
Pennsylvania	1989	77	142	59	41.5	72	50.7	11	7.7
New Jersey	1986	74	200	56	28.0	115	57.5	29	14.5
Ohio	1990	65	117	54	46.2	53	45.3	10	8.5
Florida		55	132	42	31.8	66	50.0	24	18.2
Utah		43	37	23	62.2	10	27.0	4	10.8
Washington	1987	39	53	29	54.7	17	32.1	7	13.2
Michigan	1989	38	89	33	37.1	46	51.7	10	11.2
Virginia	1988	33	51	17	33.3	23	45.1	11	21.6
Maryland	1989	32	44	14	31.8	28	63.6	2	4.5
Wisconsin	1987	30	45	27	60.0	15	33.3	3	6.7
Indiana	1986	28	37	21	56.8	11	29.7	5	13.5
Georgia	1988	26	66	24	36.4	37	56.1	5	7.6
Oklahoma	1991	26	65	23	35.4	31	47.7	11	16.9
Oregon		26	41	21	51.2	12	29.3	8	19.5
Illinois	1989	20	146	14	9.6	117	80.1	15	10.3
Missouri	1986	17	41	10	24.4	23	56.1	8	19.5
Kansas	1989	14	24	10	41.7	7	29.2	7	29.2
North Carolina		14	44	11	25.0	25	56.8	8	18.2
Connecticut	1989	12	95	11	11.6	69	72.6	15	15.8
Tennessee	1988	12	29	9	31.0	15	51.7	5	17.2
Iowa		10	18	8	44.4	6	33.3	4	22.2
Wyoming	1989	8	4	2	50.0	0	0.0	2	50.0
Arizona	1987	7	44	6	13.6	29	65.9	9	20.5
New Mexico		6	8	3	37.5	2	25.0	3	37.5
Rhode Island	1990	6	15	6	40.0	7	46.7	2	13.3
South Carolina	1988	6	17	5	29.4	9	52.9	3	17.6
Louisiana		4	19	1	5.3	12	63.2	6	31.6
New Hampshire		4	19	2	10.5	12	63.2	5	26.3
Mississippi		3	8	3	37.5	4	50.0	1	12.5
Montana		3	5	3	60.0	1	20.0	1	20.0
North Dakota		3	2	1	50.0	0	0.0	1	50.0
Kentucky	1987	2	11	2	18.2	9	81.8	0	0.0
Maine	1988	2	2	2	100.0	0	0.0	0	0.0
South Dakota	1990	2	3	1	33.3	1	33.3	1	33.3
Hawaii		1	4	1	25.0	3	75.0	0	0.0
Idaho	1988	1	6	6	100.0	5	83.3	1	16.7
Nebraska	1988	1	6	1	16.7	4	66.7	1	16.7
Vermont		1	5	1	20.0	3	60.0	1	20.0
West Virginia		1	5	1	20.0	3	60.0	1	20.0
Alabama		0	13	0	0.0	12	92.3	1	7.7
Arkansas		0	9	0	0.0	5	55.6	4	44.4
District of Columbia		0	3	0	0.0	3	100.0	0	0.0
Total		3567	3567	1180	33.1	1951	54.7	436	12.2

Table 2. Industries with the highest tariffs on imports from Canada

This table lists the 20 industries for which the FTA reduced tariffs by the greatest amount.

Four-digit SIC (U.S., 1987)	Industry	Import tariff cuts
3021	Rubber and plastics footwear	36.06%
2326	Men's and boys' work clothing	28.88%
3253	Ceramic wall and floor tile	20.00%
2111	Cigarettes	19.33%
2221	Broadwoven fabric mills, manmade fiber and silk	14.53%
2037	Frozen fruits, fruit juices, and vegetables	11.85%
2821	Plastics materials, synthetic resins, and nonvulcanizable elastomers	11.26%
3671	Electron tubes	11.06%
2022	Natural, processed, and imitation cheese	10.46%
3144	Women's footwear, except athletic	10.01%
3171	Women's handbags and purses	9.73%
3229	Pressed and blown glass and glassware, not elsewhere classified	9.31%
2824	Manmade organic fibers, except cellulosic	8.83%
2211	Broadwoven fabric mills, cotton	8.81%
3143	Men's footwear, except athletic	8.55%
3824	Totalizing fluid meters and counting devices	8.06%
2084	Wines, brandy, and brandy spirits	7.83%
2015	Poultry slaughtering and processing	7.77%
3661	Telephone and telegraph apparatus	7.76%
3851	Ophthalmic goods	7.55%

Table 3. Summary statistics

This table gives summary statistics for firm and industry characteristics. Panel A reports mean, median, and standard deviation for average U.S. tariffs on imports from Canada for the period of 1986-88 as well as the HHI index computed in 1988. In Panel B, we report summary statistics for firm variables. See Appendix 1 for the description of all variables.

<i>Panel A. Competition and concentration measures</i>			
	Mean	Median	Standard deviation
Import tariff cut	0.0445	0.0333	0.0504
Export tariff cut	0.0934	0.0646	0.1144
Herfindahl-Hirschman index (1988)	0.1737	0.1482	0.1210

<i>Panel B. Firm characteristics</i>				
	Number of firms	Mean	Median	Standard deviation
Assets size	34,264	3.6303	3.4917	2.3506
Ln (age)	34,279	2.1884	2.1972	0.9611
ROA	33,462	0.0584	0.1181	0.2421
Leverage	33,410	0.1937	0.1534	0.1874
Market-to-book	27,770	1.6435	0.6649	2.4251
Institutional investor ownership	14,428	0.2686	0.2207	0.2189
Import penetration	34,264	0.1276	0.0939	0.1208
Net change in capital	28,581	0.1261	0.0038	0.2579
Net change in equity	29,032	0.0838	0.0001	0.2305
Net change in debt	30,191	0.0576	0	0.1527
Oil spike exposure	1,720	0.0099	.0085	0.0667

Table 4. Main specification

This table reports OLS regressions. In Columns (1) and (2), we include the BC law dummy and the variable measuring the change in import tariffs; in Columns (3)-(6), we include the interaction between BC law dummy and the variable measuring the change in import tariffs. Column (5) also includes a variable measuring the change in export tariffs and Column (6) its interaction with the BC law dummy. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: ROA</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
BC	-0.0268** (0.0102)	-0.0250** (0.0097)	-0.0205* (0.0105)	-0.0189* (0.0101)	-0.0133* (0.0066)	-0.0133* (0.0066)
BC × Import tariff cuts			-0.4497** (0.2132)	-0.4615** (0.2168)	-0.5595*** (0.2058)	-0.5610** (0.2614)
Import tariff cuts	-0.3245*** (0.0958)	-0.2311** (0.0960)	0.0253 (0.2089)	0.1315 (0.2078)	0.2134 (0.2008)	0.2146 (0.2465)
Export tariff cuts					-0.0045 (0.0219)	0.0009 (0.0596)
BC × Export tariff cuts						-0.0052 (0.0559)
Size	0.1061*** (0.0058)	0.1094*** (0.0055)	0.1061*** (0.0058)	0.1093*** (0.0056)	0.1080*** (0.0065)	0.1080*** (0.0065)
Size squared	-0.0083*** (0.0005)	-0.0085*** (0.0005)	-0.0083*** (0.0005)	-0.0085*** (0.0005)	-0.0081*** (0.0005)	-0.0081*** (0.0005)
Ln (age)	-0.0315*** (0.0056)	-0.0205** (0.0101)	-0.0318*** (0.0056)	-0.0210** (0.0099)	-0.0208** (0.0093)	-0.0208** (0.0093)
State-year	0.2205*** (0.0584)	0.2220*** (0.0623)	0.2192*** (0.0573)	0.2205*** (0.0613)	0.2059*** (0.0560)	0.2059*** (0.0560)
Industry-year	0.1618*** (0.0320)	0.1593*** (0.0283)	0.1614*** (0.0318)	0.1587*** (0.0281)	0.1270*** (0.0275)	0.1270*** (0.0275)
HHI _{<i>t-1</i>}		0.0840*** (0.0272)		0.0848*** (0.0266)	0.0735*** (0.0264)	0.0735*** (0.0263)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	32,777	29,512	32,777	29,512	29,512	25,001
R ² (adjusted)	0.622	0.617	0.622	0.617	0.617	0.635

Table 5. Firm characteristics

This table reports OLS regressions. In Column (1) (resp. Column (2)) we estimate a regression for firms that have TFP greater (resp. lower) than the median TFP of the three-digit industry in which the firm operates in 1984. In Column (3) (resp. Column (4)), we estimate a regression for firms with headquarters located in a state with the principal city closer (resp. farther) than 300 miles to the U.S.-Canada border crossing. All regressions include the control variables used in Column (3) of Table 4. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

	High-TFP firms	Low-TFP firms	Closer to border	Farther from border
	(1)	(2)	(3)	(4)
BC	0.0055 (0.0090)	-0.0221* (0.0113)	-0.0030 (0.0070)	-0.0402** (0.0161)
BC × Import tariff cuts	-0.4967** (0.2045)	-0.9504** (0.3912)	-0.4752** (0.1865)	-0.1705 (0.2458)
Import tariff cuts	0.3097* (0.1709)	0.5680 (0.4254)	0.0743 (0.1696)	-0.1807 (0.2830)
Controls	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Number of obs.	11,571	9,755	16,880	15,897
R^2 (adjusted)	0.455	0.480	0.6406	0.6026

Table 6. Robustness with respect to industry characteristics

This table reports OLS regressions in which we add industry controls to the baseline regression reported in Column (3) of Table 4. In Column (1), we add the interaction between the BC law dummy and average tariffs before 1989. In Column (2), we add the interaction the BC law dummy and the HHI. In Column (3), we add - as industry controls - skill intensity, capital intensity and TFP growth (all averaged for the period 1986 to 1989 and interacted with a dummy, set equal to 1 in the post-FTA period). In Column (4), we add all the controls that were included separately in Columns (1)-(3). Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: ROA</i>				
	(1)	(2)	(3)	(4)
BC	-0.0183 (0.0128)	-0.0171 (0.0108)	-0.0145** (0.0065)	-0.0107 (0.0096)
BC × Import tariff cuts	-0.4476* (0.2233)	-0.4600** (0.2171)	-0.4963** (0.2057)	-0.4236** (0.1852)
Import tariff cuts	0.1377 (0.2289)	0.1346 (0.2074)	0.2646 (0.1949)	0.3052 (0.2104)
Size	0.1093*** (0.0056)	0.1093*** (0.0055)	0.1082*** (0.0069)	0.1083*** (0.0069)
Size squared	-0.0085*** (0.0005)	-0.0085*** (0.0005)	-0.0083*** (0.0006)	-0.0083*** (0.0006)
Ln (age)	-0.0210** (0.0098)	-0.0211** (0.0100)	-0.0226** (0.0095)	-0.0225** (0.0095)
State-year	0.2205*** (0.0613)	0.2207*** (0.0612)	0.1998*** (0.0579)	0.1997*** (0.0580)
Industry-year	0.1587*** (0.0279)	0.1592*** (0.0278)	0.1340*** (0.0245)	0.1342*** (0.0245)
HHI _{<i>t-1</i>}	0.0847*** (0.0265)	0.0903*** (0.0336)	0.0832*** (0.0269)	0.0815** (0.0308)
BC × Pre-1989 tariffs	-0.0260 (0.1855)			-0.1447 (0.1104)
BC × HHI _{<i>t-1</i>}		-0.0098 (0.0229)		0.0013 (0.0229)
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry characteristics	No	No	Yes	Yes
Number of obs.	29,512	29,512	26,018	26,018
R ² (adjusted)	0.617	0.617	0.636	0.636

Table 7. Additional robustness checks

This table reports OLS regressions. In Column (1), we conduct a falsification test that considers a placebo implementation of the BC laws three years before their actual implementation. In Column (2), we conduct a falsification test that considers a placebo implementation of the FTA three years before its actual implementation, where standard errors are clustered by four-digit SIC industry. Column (3) provides the results of estimation in Column (3) of Table 4 but without including any time-varying controls. Column (4) excludes firms incorporated in Delaware. Column (5) excludes firms operating in more than one segment. Column (6) excludes the firms incorporated in the states that passed BC laws after the FTA implementation (i.e. BC laws passed in 1990 and 1991). In Column (7) replicates estimations in Column (3) of Table 4 but instead clusters standard errors by four-digit SIC industry, while in Column (8) two-way clusters standard errors by state of incorporation times four-digit SIC industry. All regressions, except the one in Column (3) include the control variables used in Column (3) of Table 4. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: ROA</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Placebo BC	-0.0078 (0.0091)							
Placebo Import tariff cuts		-0.0836 (0.1522)						
BC			-0.0074 (0.0083)	-0.0130 (0.0089)	-0.0221 (0.0135)	-0.0210* (0.0111)	-0.0189** (0.0077)	-0.0189** (0.0092)
BC × Import tariff cuts			-0.5255** (0.2528)	-0.5796** (0.2214)	-0.4652* (0.2441)	-0.5003** (0.2400)	-0.4615** (0.2082)	-0.4615* (0.2400)
Import tariff cuts			0.2577 (0.2366)	0.1390 (0.2246)	0.0693 (0.2733)	0.1462 (0.2266)	0.1315 (0.2253)	0.1315 (0.2404)
Controls	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	29,512	29,512	33,462	14,619	15,983	27,775	29,512	29,512
R^2 (adjusted)	0.617	0.617	0.592	0.583	0.603	0.619	0.617	0.617

Table 8. Alternative measures of competition and corporate governance

This table reports OLS and instrumental variables regressions. In Column (1) we estimate regressions in which corporate governance is proxied by the fraction of the firm's shares held by the institutional investors. In Column (2) we estimate regressions in which foreign competition is proxied by import penetration of the firm's industry. Import penetration is instrumented with the weighted average of the real exchange rates of the importing countries, where weights for each industry are the shares of each foreign country's imports in the total imports of that industry, fixed in 1981. All regressions include the control variables used in Column (3) of Table 4. Control variables are described in Appendix 1. In columns 1-2 Standard errors are clustered by industry while in columns 3-4 they are clustered by state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: ROA</i>		
	(1)	(2)
Institutional ownership	0.0640*** (0.0191)	
Institutional ownership \times Import tariff cuts	0.9574** (0.3952)	
Import tariff cuts	-0.3687 (0.2312)	
BC		0.0982 (0.0599)
BC \times Import penetration		-0.8743* (0.4679)
Import penetration		2.2823 (1.4989)
Controls	Yes	Yes
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Number of obs.	14,011	33,490
R^2 (adjusted)	0.7092	-

Table 9. Market value

This table reports OLS regressions. Market-to-book ratio is estimated as the market value of equity at the end of the fiscal year divided by the book value of common equity; this ratio is limited to the interval between 0 and 10. In Column (1), we report estimates using the same specification as in Column (3) of Table 4. In Columns (2)-(4) we sequentially include other controls (lagged by one year): ROA, extent of leverage and ratio of R&D expenditures to sales. In Column (5), we include all controls together. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: Market to book ratio</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
BC	0.0716 (0.0683)	0.0599 (0.0704)	0.0792 (0.0736)	0.0634 (0.0749)	0.0595 (0.0701)	0.0803 (0.0784)
BC × Import tariff cuts	-6.6526** (2.5484)	-9.3694** (4.3318)	-8.1342* (4.0729)	-9.6753** (4.1935)	-9.3674** (4.3312)	-8.2615** (3.9814)
Import tariff cuts	3.6672 (2.2125)	6.1295 (3.9027)	5.4033 (3.6081)	6.1128 (3.7178)	6.1411 (3.9007)	5.1769 (3.4771)
Size	0.4731*** (0.1003)	0.4756*** (0.1015)	0.3934*** (0.0899)	0.4790*** (0.1105)	0.4690*** (0.1038)	0.4024*** (0.1047)
Size squared	-0.0034 (0.0071)	-0.0038 (0.0073)	0.0024 (0.0063)	-0.0031 (0.0078)	-0.0032 (0.0074)	0.0029 (0.0074)
Ln (age)	-0.2208*** (0.0752)	-0.2217*** (0.0752)	-0.1977*** (0.0697)	-0.1942** (0.0803)	-0.2231*** (0.0740)	-0.1643** (0.0688)
State-year	0.1744*** (0.0577)	0.1756*** (0.0571)	0.1797*** (0.0589)	0.1649*** (0.0546)	0.1761*** (0.0572)	0.1687*** (0.0555)
Industry-year	0.3058*** (0.0307)	0.3056*** (0.0306)	0.3105*** (0.0285)	0.3095*** (0.0292)	0.3057*** (0.0305)	0.3124*** (0.0277)
HHI _{<i>t-1</i>}	0.9125*** (0.3000)	0.9180*** (0.3045)	0.8930*** (0.3139)	0.8836*** (0.2832)	0.9146*** (0.3054)	0.8411*** (0.2938)
Export tariff cuts	0.5436 (0.4565)	-1.0025 (1.5086)	-0.7388 (1.4247)	-1.1933 (1.4295)	-1.0111 (1.5062)	-0.7697 (1.4110)
BC × Export tariff cuts		1.4100 (1.5045)	1.9807 (1.4180)	1.6981 (1.4368)	1.6981 (1.5029)	1.5590 (1.4131)
ROA _{<i>t-1</i>}			0.4612*** (0.1273)			0.5780*** (0.1521)
Leverage _{<i>t-1</i>}				-0.5752*** (0.1211)		-0.5367*** (0.1129)
R&D _{<i>t-1</i>}					-0.1043 (0.0944)	1.0297*** (0.3442)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	22,091	22,091	21,714	21,747	21,818	21,188
R ² (adjusted)	0.520	0.520	0.524	0.523	0.518	0.521

Table 10. Abnormal returns around the 1988 Canadian general election

This table reports the cumulative abnormal returns (CARs) of stocks of U.S. firms. These returns are calculated as the difference between actual holding returns (as extracted from CRSP), and expected returns (projected using a market model with the parameters estimated from 241 to 41 trading days prior to November 21, 1988). Event date [0] in the table corresponds to November 21, 1988. Columns (1)-(3) report results for different equally weighted portfolios, constructed at the three-digit SIC industry level: Column (1) reports results of all industry portfolios; Column (2) reports the average abnormal returns for portfolios of the firms in industries subject to high (i.e. greater than 3.3%) tariff; and Column (3) reports the average abnormal returns for portfolios of the firms in industries subject to low (i.e. lower than 3.3%) tariff. Columns (5)-(6) report results for different equally weighted portfolios, constructed at the state of incorporation level: Column (5) reports the average abnormal returns for portfolios of the firms incorporated in a state that passed a BC law before 1989; and Column (6) reports the average abnormal returns for portfolios of the firms incorporated in a state that passed a BC law in or after 1989. Standard errors are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

CARs around Canadian election results							
	All firms	High tariffs	Low tariffs	Difference: (2)-(3)	BC laws present	No BC laws	Difference: (5)-(6)
Event period	(1)	(2)	(3)	(4)	(5)	(6)	(7)
[-20,-1]	-0.0035 (0.0064)	-0.0138 (0.0087)	0.0075 (0.0093)	-0.0212* (0.0127)	-0.0013 (0.0168)	0.0186 (0.0227)	-0.0199 (0.0332)
[-5,-1]	-0.0024 (0.0034)	-0.0063 (0.0041)	0.0018 (0.0055)	-0.0081 (0.0068)	0.0013 (0.0042)	-0.0069 (0.0087)	0.0081 (0.0122)
[-1,0]	-0.0003 (0.0039)	-0.0045 (0.0030)	-0.0021 (0.0040)	-0.0024 (0.0049)	-0.0050 (0.0037)	-0.0037 (0.0045)	-0.0012 (0.0067)
[0,0]	-0.0009 (0.0034)	-0.0043** (0.0018)	-0.0030 (0.0029)	-0.0013 (0.0034)	-0.0057** (0.0026)	-0.0034 (0.0036)	-0.0023 (0.0052)
[0,1]	-0.0016 (0.0037)	-0.0086*** (0.0023)	-0.0003 (0.0036)	-0.0083* (0.0043)	-0.0064* (0.0038)	0.0043 (0.0058)	-0.0106 (0.0083)
[0,3]	-0.0049* (0.0028)	-0.0091*** (0.0032)	-0.0003 (0.0047)	-0.0088 (0.0057)	-0.0135*** (0.0047)	0.0020 (0.0060)	-0.0155* (0.0088)
[0,5]	-0.0034 (0.0032)	-0.0125*** (0.0042)	0.0063 (0.0046)	-0.0188*** (0.0062)	-0.0144*** (0.0052)	0.0044 (0.0069)	-0.0188* (0.0101)

Table 11. Exporters

This table reports OLS regressions. We distinguish between exporters and non-exporters (a firm is classified as an exporter if exports constituted at least 1% of its sales prior to the FTA). These regressions also include, as an explanatory variable, the interaction between the change in export tariffs and our BC law dummy. In Column (1) we estimate the regression for the sample of non-exporting firms. In Columns (2)-(5) we estimate regressions for the sample of exporting firms. In Column (4) (resp. Column (5)) we estimate separate regressions for exporting firms in industries with the share of exports to Canada over all exports in 1985 higher (resp. lower) than 15%. All regressions include the control variables used in Column (3) of Table 4. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: ROA</i>					
	Non-exporters	Exporters			
				Industries with high exports to Canada	Industries with low exports to Canada
	(1)	(2)	(3)	(4)	(5)
BC	-0.0173* (0.0096)	-0.0002 (0.0056)	0.0011 (0.0056)	-0.0005 (0.0109)	0.0054 (0.0076)
BC × Export tariff cuts	-0.5624* (0.3249)		-0.2653** (0.1176)	-0.3388** -0.1423	-0.1816 -0.173
Export tariff cuts	0.0419 (0.0587)	0.0672** (0.0267)	0.3184*** (0.1140)	0.3877*** (0.1193)	0.2081 (0.1671)
BC × Import tariff cuts	-0.0242 (0.0554)	-0.4729*** (0.1698)	-0.0622 (0.1721)	0.0955 (0.7126)	-0.3185 (0.2132)
Import tariff cuts	0.0508 (0.2818)	0.1933 (0.1405)	-0.1917 (0.1403)	-0.044 (0.7033)	-0.0963 (0.1925)
Controls	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Number of obs.	12,542	9,119	9,119	5,011	4,081
R^2 (adjusted)	0.570	0.461	0.461	0.432	0.491

Table 12. Financial constraints and performance

This table reports OLS regressions. In Column (1) (resp. Column (2)) we estimate separate regressions for firms in industries with high (resp. low) net change in capital in 1984, one year prior to the first BC laws. Net change in capital is estimated as net change in equity and debt, normalized by the firm's book value of assets at the beginning of the year. In Column (3) (resp. Column (4)) we estimate separate regressions for firms that had (resp. did not have) an S&P long-term debt rating in 1985. In Column (5) (resp. Column (6)) we estimate separate regressions for firms that were smaller (resp. larger) than the median industry size in 1984, one year prior to the first BC laws. In Column (7) (resp. Column (8)) we estimate separate regressions for firms that were young (resp. older) than the median firm in 1984. All regressions include the control variables used in Column (3) of Table 4. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

Dependent variable: ROA

	High capital intensive industries	Low capital intensive industries	Firms with credit rating	Firms without credit rating	Large firms	Small firms	Old firms	Young firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BC	-0.0227 (0.0157)	-0.0035 (0.0072)	-0.0073 (0.0078)	-0.0153 (0.0110)	-0.0006 (0.0077)	-0.0219* (0.0129)	-0.0021 (0.0069)	-0.0238* (0.0130)
BC × Import tariff cuts	-1.0507*** (0.2188)	-0.0429 (0.3525)	-0.0928 (0.4714)	-0.6897*** (0.2289)	-0.3875** (0.1735)	-0.8818** (0.4357)	-0.0080 (0.4047)	-0.9515*** (0.2297)
Import tariff cuts	0.3441 (0.2364)	0.0295 (0.3467)	0.2066 (0.4863)	0.2902 (0.1962)	0.2852* (0.1649)	0.4034 (0.4185)	0.0627 (0.3986)	0.4212 (0.2597)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	12,838	11,202	4,577	20,437	12,068	10,445	11,789	10,724
R^2 (adjusted)	0.4892	0.4592	0.4247	0.5036	0.440	0.497	0.412	0.490

Table 13. Oil price spike

This table reports OLS regressions. We include the BC law dummy, variables measuring the change in import tariffs exposure to oil price spike in 1990, all pairwise interactions as well as triple interaction among them. Column (1) reports the results of a regression without any control variables. Column (2) reports the results of a regression with the control variables used in Column (3) of Table 4, and Column (3) also includes the reduction in export tariffs. Column (4) performs the regression on our full sample, replacing Oil spike exposure variable with 0 where values are unavailable. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: ROA</i>				
	(1)	(2)	(3)	(4)
BC	-0.0111 (0.0084)	-0.0144* (0.0074)	-0.0149* (0.0078)	-0.0097 (0.0067)
BC × Import tariff cuts × Oil spike exposure	-16.3904* (8.2565)	-16.8277** (8.2587)	-16.7903* (8.4216)	-15.0903* (7.7437)
BC × Import tariff cuts	-0.2637 (0.3793)	-0.2026 (0.4094)	-0.2559 (0.5493)	-0.5075** (0.2464)
Import tariff cuts × Oil spike exposure	10.5049 (7.8530)	11.2219 (7.6550)	11.1796 (7.8249)	9.3238 (7.3099)
BC × Oil spike exposure	0.6592 (0.4115)	0.7225 (0.4274)	0.7218 (0.43)	0.6184 (0.3919)
Oil spike exposure	-0.4132 (0.3993)	-0.4764 (0.4106)	-0.4723 (0.413)	-0.393 (0.3814)
Import tariff cuts	0.0334 (0.3453)	-0.0817 (0.3854)	-0.092 (0.5216)	0.2178 (0.2307)
Export tariff cuts			0.0147 (0.0968)	
BC × Export tariff cuts			0.0322 (0.0982)	
Controls	No	Yes	Yes	No
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Number of obs.	14,847	14,483	14,483	28,370
R^2 (adjusted)	0.5645	0.5907	0.5908	0.6128

Table 14. External finance

This table reports OLS regressions. In Columns (1) to (4), we use net change in capital as the dependent variable. In Columns (1)-(2), we consider the combined net change in equity and debt, normalized by the firm's book value of assets at the beginning of the year. In Column (3), we consider only the net change in common shares of equity, while in Column (4) we consider only the net change in debt. In Column (5), the dependent variable is instead security issuance, which is estimated from data in the SDC New Issues database and is equal to total proceeds from issuance of securities over the year divided by the book value of assets at the beginning of the year. All dependent variables are limited to the interval between 0 and 1. All regressions include the control variables used in Column (3) of Table 4 as well as beginning-of-year leverage and the reduction in export tariffs; in Column (2) we also include the interaction between BC laws and reduction in export tariffs. Control variables are described in Appendix 1. Standard errors, clustered by state of incorporation, are given in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable:</i>	Net change in equity and debt		Net change in equity	Net change in debt	Security issuance
	(1)	(2)	(3)	(4)	(5)
BC	-0.0436** (0.0165)	-0.0445** (0.0168)	-0.0129 (0.0086)	-0.0152** (0.0060)	-0.0065 (0.0109)
BC × Import tariff cuts	-0.4452** (0.1849)	-0.6387* (0.3434)	-0.3301*** (0.1116)	-0.2324 (0.1637)	-0.4569** (0.1933)
Import tariff cuts	0.4900* (0.2721)	0.6526* (0.3636)	0.1734 (0.1073)	0.3505* (0.1862)	0.3014** (0.1262)
Controls	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry and state trends	Yes	Yes	Yes	Yes	Yes
Number of obs.	17334	17334	17397	18539	20239
R^2 (adjusted)	0.3849	0.3849	0.4317	0.2133	0.3281

Table A1. External finance and product prices

This table reports OLS regressions that control for year, industry fixed effects, and the HHI (computed from the U.S. Census by replacing the missing years with the last available year; see text). In Column (1) (resp. Column (2)), we estimate a regression for industries that raised a (resp. low) amount of new capital between 1989 and 1995 - that is, subsequent to passage of the FTA. We estimate this measure of new capital raised by summing all new capital raised for all firms, both public and private, in each industry (as reported by SDC New Issues database) and then normalizing it by the value of total shipments in the industry in 1989. In Columns (3)-(6), we report the same regressions in Columns (1) and (2) but split the sample for the industries above and below the median HHI. Heteroskedasticity-robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1%, respectively.

<i>Dependent variable: Producer Price Index</i>						
	Full sample		High capital raised		Low capital raised	
	High capital raised	Low capital raised	Concentrated industries	Competitive industries	Concentrated industries	Competitive industries
	(1)	(2)	(3)	(4)	(5)	(6)
Import tariff cuts	-4.7801 (10.6020)	-15.7907** (7.1395)	-3.8118 (7.7048)	-36.8922 (35.9072)	-2.3315 (8.8081)	-58.6253*** (10.3587)
Controls (HHI)	Yes	Yes	Yes	Yes	Yes	Yes
Industry f.e.	Yes	Yes	Yes	Yes	Yes	Yes
Year f.e.	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,777	1,671	1,231	546	869	802
R^2 (adjusted)	0.813	0.777	0.784	0.878	0.753	0.875