The Effect of Inversions on Corporate Governance

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Abstract

The race by American companies to change their incorporation to countries with a lower corporate tax rate (inversion) has reached fever pitch. An open empirical question is if and how such an inversion affects a firm's governance. While many inversions happen to countries that offer weaker protection to minority shareholders than the U.S., we find that most firms that invert continue to be treated by the SEC as an "U.S. issuer", and thus their shareholders benefit from the full protection offered by the U.S. Federal Securities Laws. Our analysis shows that executives in inverted firms receive more cash compensation and their wealth is less sensitive to stock prices. After an inversion, firms increase the number of anti-takeover charter provisions. Consistent with weaker market-based governance, the stock price of firms that invert is less liquid and the firms have lower institutional ownership. Investors put a lower value on the cash on inverted firm's balance sheet especially if the firm inverts to a country that ranks low in terms of rule of law. Overall, our results highlight that despite enjoying the full protection of U.S. Federal Securities Laws, inverted firms have weaker governance relative to comparable U.S. firms.

Keywords: Corporate inversions, corporate governance, valuation.

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Introduction

In an attempt to reduce their tax burden, many U.S. companies re-incorporate overseas or are considering such a move. These corporate inversion announcements continue despite the U.S. tax authorities' attempts to tweak the rules in order to reduce the benefits of reincorporation—the proposed and subsequently withdrawn Pfizer-Allergan deal being one of the most recent examples. While inversions may potentially afford some tax benefits, there may also be some costs (to shareholders) resulting from changes in the firm's corporate governance. Changes to governance resulting from reincorporation overseas have attracted the attention of major institutional investors including public pension funds such as Calpers.[1] For example, the controversy regarding Walgreens' recent attempt to reincorporate to Switzerland, a country with civil law legal origin, illustrates this point. While a number of activist hedge fund shareholders, including Jana Partners LLC, were attracted to the lower taxes, another Walgreens shareholder, the CtW Investment Group, opposed the move based on concerns that it would weaken the company's corporate governance.[2] Thus, changes to governance are front and center in the dialogue about the costs and benefits of inversions. In contrast, the academic literature is mostly silent on the effect of inversions on firm governance. Our paper attempts to fill this gap. Our objective is to do a comprehensive study of the effect of an inversion on different aspects of firm governance.

Corporate inversions or expatriations are outbound reorganizations resulting in the parent of a multinational moving from the U.S. tax jurisdiction to a foreign tax jurisdiction. Such an expatriation not only alters the tax exposure of the company but it also changes the applicable corporate law– from the relevant U.S. state law to that in the country of reincorporation. Previous studies in law and finance establish the connection between a country's legal rules and the strength of corporate governance and the extent of protection afforded to minority shareholders (see de Silanes et al. (1998); La Porta et al. (2002, 2000)). Given this, the change in the applicable corporate law is likely to have corporate governance implications.

A tax inversion may also leave a firm's governance arrangements unaltered. This is because our analysis reveals that after an inversion, most U.S. firms continue to be traded in U.S. exchanges and

[1] See http://www.calstrs.com/news-release/reincorporation-efforts-gain-momentum-iss-recommendation-supporting-tyco-return-us

[2] See "Walgreen Shareholder Opposes Potential Deal to Reincorporate Abroad", New York Times, May 13, 2014 and "Walgreen Weighs Riding Tax-Inversion Wave", Wall Street Journal, July 14, 2014.

are classified by the Securities and Exchange Commission (SEC) as "U.S. issuers".[3] The SEC's legal definition is important because all U.S. issuers receive the same treatment under the U.S. Federal Securities Laws. In particular, all U.S. issuers are required to file financial statements conforming to U.S. GAAP, denominated in U.S. dollars. They must file 10-Ks, 10-Qs, 8-Ks, and proxy statements, and they must comply with Regulation FD. Moreover, their executive officers are subject to similar personal liability penalties (see Kinsey (2001)). Furthermore, unlike a foreign issuer, U.S. issuers cannot opt-out of corporate governance requirements of U.S. stock exchanges which regulates governance best practices and board structure (see Foley et al. (2014)). Therefore, for the inverted firms in our sample that are all classified as an U.S. issuer, the bonding hypothesis proposed by Stulz (1999) and Coffee (1999) is particularly relevant. By virtue of remaining listed in U.S. exchanges, these firms may be able to credibly commit to strong governance arrangements and overcome the costs from weak protection afforded by corporate law. Thus, the effect of inversions on a firm's corporate governance is an open empirical question.

Note that despite apparent similarities, there are important differences between inversions and cross-listed firms, which are the object of study of an extensive literature (Doidge et al. (2004, 2007, 2009)). Most cross-listed firms are classified as a "foreign issuer" by the SEC and hence need to satisfy weaker disclosure requirements than the inversions in our sample. Furthermore, the inverted firms have a majority of shareholders and significant operations in the U.S. which further enhances the SEC's incentive and ability to enforce its rules (Siegel (2005); Shnitser (2010); Licht (2003); and Gagnon and Karolyi (2012)).

Our comprehensive inversion sample consists of 66 firms and 438 firm-year observations over the 1996-2013 period. We classify the inversions into two subgroups based on how they invert: Pure inversions and Restructuring inversions. We have 21 Pure inversions and 45 Restructuring inversions in our sample. A Pure inversion does not involve any change in either a company's operations or in the identity of its shareholders. Legally, the American operations of the firm are organized as a subsidiary of the new foreign parent. There are currently eight members of the S&P 500 index that have undergone a Pure inversion (see Table 1). In a Restructuring inversion, there are material changes to either the company's ownership, business, or assets. These changes take place as a result of mergers, leveraged buyouts (LBO), spin-offs, or bankruptcy transactions.

[3]The SEC defines a foreign-incorporated firm as an U.S. issuer if more than 50% of the outstanding voting securities are held by U.S. residents and the firm has significant business in the U.S. (see Internet Appendix for more details). Otherwise the firm is classified as a foreign issuer.

Our main empirical analysis compares the inversions to a group of U.S. incorporated multinational control firms identified by matching on observable firm characteristics. Since inverted firms typically have operations in multiple countries, we confine our control sample to multinationals – firms that report positive sales in at least one foreign subsidiary. For our baseline control sample, we match on industry – identified by the six-digit Global Industry Classification Standard (GICS) code – financial (fiscal) year, *Log(Total assets)*, *Market to book* and *Return on asset (ROA).* All the variables that we use are defined in the Appendix. Specifically, for every inverted firm-year in our sample, we identify up to two unique control firm-year observations involving a U.S. multinational firm from the same industry and financial year as the inverted firm-year and that is the closest in terms of the three covariates. We use the Mahalanobis distance to identify the closest match. Our matching procedure is effective as the two samples are indistinguishable in terms of the distribution of the matching variables.

Although our matching procedure ensures that the inversions and control firms are similar on observable dimensions, unobserved differences between the two could bias our estimates. To control for time-invariant differences between inversions and the control sample, we implement a difference-in-differences procedure where we compare the changes in outcome variables before and after inversion to changes in outcome variables for the control firms. We also perform additional tests that help us evaluate the extent of unobserved "time-varying" heterogeneity required to overturn our conclusion.

In our empirical analysis, we focus on several dimensions of corporate governance motivated by previous studies. We begin by comparing the level, composition of the compensation and portfolio *Delta* of executives of inverted and control firms. Standard agency theory suggests that lower pay and more stock based pay may serve as an optimal governance tool and help focus managerial attention towards maximizing long-term shareholder value (Jensen and Murphy (1990); Mehran (1995)). However, in poorly governed firms, self-interested managers may exert their influence over the pay process and obtain contracts with higher compensation and a larger cash component (Core et al. (1999) and Bebchuk et al. (2003)). Our results indicate that while there is no significant difference in the level of pay between the executives in inverted firms and those in the control sample, the former obtain more cash pay and less equity pay. As compared to the median level of cash pay in our sample of $449,880, executives in firms that invert obtain 16.29% more cash pay. Consistent with this, the percentage of equity-based compensation is 5.4% lower for executives in

firms that invert. Moreover, the sensitivity of executive portfolio to changes in stock price is 25.84% lower in firms that invert. This is consistent with a weaker link between pay and performance among inverted firms.

Second, we compare the corporate governance provisions and board structure of inversions to that of the control firms. To this end, we compute the Bebchuk et al. (2009) entrenchment index (E-index) that measures the extent to which firms are protected from hostile takeovers. We find that inverted firms have higher E-index as compared to the control firms. Specifically, firms that invert have 17.9% higher E-index value as compared to the median E-index of 2 in our sample. This is consistent with greater managerial entrenchment among firms that invert, consistent with weaker governance in these firms. We do not find any statistically significant difference in terms of board independence and CEO-Chairman duality between the inversions and the control firms. U.S. securities laws and stock exchanges have detailed provisions regarding board structure. To the extent that the firms that invert are classified as U.S. issuers by the SEC and continue to be listed in an U.S. exchange, they have to satisfy these regulations. This could explain the lack of significant differences in board structure.

Third, we compare the stock liquidity of inversions and control firms. Not only can a liquid stock serve as an important governance mechanism (Holmstrom and Tirole (1993), Edmans et al. (2013)) but a firm's governance can also affect stock liquidity. Weaker governance can distort a firm's incentives to disclose additional information resulting in greater adverse selection and wider spreads (Diamond (1985) and Chung et al. (2010)). We find evidence consistent with inverted firms having less liquid stock: they have a higher bid-ask spread, lower turnover and greater dispersion in analyst earnings forecast as compared to control firms. We also find that institutional ownership is lower and more concentrated among the inverted firms; relative to the sample of U.S. control firms, inversions have a 14.1% larger Herfindahl-Hirschman Index of institutional ownership concentration. This indicates that although firms follow U.S. securities laws after inversion, investors perceive an extra element of opacity about these firms and are reluctant to hold and trade their shares. This also indicates that market based governance and institutional monitoring may be weaker among the inverted firms.

Lastly, we investigate if the governance differences that we uncover between inversions and the control firms have value implications. To do this, we use the methodology in Faulkender and Wang (2006) and compare the value of a dollar of cash in inverted firms and U.S. firms. Our tests are

also motivated by Dittmar and Mahrt-Smith (2007) who show that the stock market puts a lower value on cash of poorly governed firms. Consistent with investors perceiving inversions to have weaker governance, we find that, on average, investors assign a lower value on cash on the inverted firm's balance sheet. While the marginal dollar of cash on a control firm's balance sheet is valued at \$1.30, investors only assign a \$1.03 value on the marginal dollar of cash on an inverted firm's balance sheet. We also find that this lower valuation is related to the rule of law in the inverted firm's country of incorporation. Employing the rule of law index obtained from the Worldwide Governance Indicators by the Worldbank, we find that a one percentile increase in the rule of law index is associated with a \$0.009 increase in the value of a marginal dollar of cash. This implies that the reincorporation of a U.S. corporation to Bermuda, a popular country for inversions, is associated with a \$0.29 decrease in the value of cash, as Bermuda is 33 percentiles lower than the U.S. in terms of its rule of law. We also find that the stock market reaction to an inversion announcement is lower if the firm inverts to a country with weaker rule of law. Our results are consistent with Pinkowitz et al. (2006) and Fresard and Salva (2010) who show that cash holdings are valued less in countries with poor investor protection and are valued more among cross-listed firms from those countries.

For the subsample of inverted firms for which we have financial information both before and after the inversion, we implement a difference-in-differences (DID) procedure. We identify the control sample by matching in the year before inversion. Our estimates from the DID procedure is similar to our matching estimates. Relative to the set of control firms, inverted firms exhibit an increase in the percentage of cash-based compensation, E-index, a reduction in stock liquidity as measured by the *Spread* and institutional ownership. While the *Cash Compensation* increases for the inversions, our estimates are not statistically significant at conventional levels.

Summarizing, our analysis highlights the less visible costs of inversions. Firms that invert award executive pay that is less sensitive to stock prices, have greater protection from hostile takeovers, higher bid-ask spread and lower institutional ownership. Additionally, consistent with investors perceiving these firms to have weaker governance, they assign a lower value on the cash on the inverted firm's balance sheet. By highlighting and quantifying the (governance) costs of inversions, our paper adds an important voice to the ongoing debate about the costs and benefits of inversions. Given the costs that we document, firms with more dispersed shareholding, and those dependent on external equity financing should evaluate the costs carefully before inverting.

The rest of the paper is organized as follows. Section 1 discusses the related literature, Section 2 addresses our methodological approach and empirical predictions. Section 3 describes our data and provides the summary statistics. Section 4 discusses the results of our empirical tests. Section 5 presents the robustness of our results which includes a difference-in-differences analysis and the market reaction to inversion announcements. Section 6 concludes. Definitions of empirical variables are in the Appendix.

1 Related Literature

Our paper is related to the legal literature that studies the role of corporate law on firm governance. As explained in Licht (2003), the corporate law that applies to a corporation in common law jurisdictions is determined by the country of incorporation. Dammann (2014) and Kun (2004) highlight the channels through which corporate law can influence firm governance. Our paper is also related to the literature that relates corporate law to firm value. This research is primarily focused on comparing Delaware corporate law (the dominant state of incorporation in the U.S.) to that of other states, see Daines (2001), Subramanian (2004) and Bebchuk and Cohen (2003). We focus on firms that incorporate overseas and compare them to U.S. firms, most of which are registered in Delaware. Thus, in terms of corporate law, our comparison is between the law in countries outside the U.S. (most of which are tax havens) to that in Delaware.

The bonding hypothesis delineated by Stulz (1999) and Coffee (1999) highlights the role of securities market regulation on the firm's governance. According to this literature, a foreign incorporated firm can cross-list in an U.S. exchange and bond itself to the more stringent legal and regulatory capital market institutions of the U.S., thereby enhancing its governance. The bonding hypothesis has been studied extensively in the context of cross-listed firms most of which are classified as foreign issuers by the SEC (Doidge et al. (2004, 2007, 2009)).

Previous literature also highlights a number of challenges to the bonding hypothesis as it applies to foreign issuers. Most notably, Siegel (2005) documents that SEC response to cases of tunneling by cross-listed Mexican firms was quite weak and toothless. Unlike cross-listed firms, the inversions in our sample continue to be classified by the SEC as an U.S. issuer. This occurs because, according to the SEC definition, any foreign firm with more than 50% of the outstanding voting securities directly or indirectly held by U.S. residents and/or with significant businesses in the U.S. (see the

Internet Appendix for details) is classified as an U.S. issuer. Thus, the bonding hypothesis is likely to be significantly stronger for inversions.

There is also a significant literature focusing on the causes and consequences of inversions. Desai and Hines (2002) study the determinants of pure inversions and conclude that they are motivated by firms trying to reduce U.S. tax on their sizable foreign income. However, they conclude that the savings associated with the reduction of taxation of foreign income alone cannot account for the increase in valuation of inverting companies. Along similar lines Seida and Wempe (2004) argue that the reduction in worldwide taxation post-inversion was partly due to companies reducing their U.S. taxable income. This was achieved primarily by stripping earnings from their U.S. operations by shifting interest expense to the U.S. subsidiary. In contrast, we find that the announcement returns of inversions, especially to countries with weak rule of law appears to be less than the present discounted value of expected tax savings.

Using a sample of inversions from a set 11 of countries, Col et al. (2016) show that firms select to reincorporate in countries with lower tax rate but similar governance standards as their host country. Babkin et al. (2015) propose a framework to compute the net tax-related benefit to shareholders from reincorporations. While they find an average positive market reaction upon the announcement, the net tax-related benefit from inversions is negative for long-term shareholders because of the loss of the tax-timing option. Similar to these papers we document an additional cost of inversions, namely the weaker corporate governance, lower stock liquidity and lower market valuation. Furthermore, unlike these papers, our sample includes restructuring inversions in addition to pure inversions.[4]

Finally, our paper is also related to previous studies that analyze the determinants and costs of tax avoidance. Hanlon and Slemrod (2009) find that the average market value decreases by -0.53% to -1.2% when tax shelter participation is revealed in the news media. Graham et al. (2011) also find that the risk of adverse media attention is very important in reducing a firm's willingness to be tax aggressive, however, Gallemore et al. (2014) find no evidence of increased CEO, CFO, or auditor turnover following tax shelter revelation. Dyreng et al. (2014) also corroborate the negative effect of public scrutiny on firms' tax avoidance strategies. Desai and Dharmapala (2009) show that corporate tax avoidance decreases firm value while Desai et al. (2007) point out that

[4]Except for Babkin et al. (2015), the sample of inversions in previous studies only includes reincorporations before 2004, not subject to the "anti-inversion" laws included in the JOBS Act.

a weak tax authority may make corporate profits less verifiable, thereby reducing the (taxable) payout to minority shareholders. Our paper contributes to this literature by documenting the corporate governance cost of inversions, which are mainly motivated to reduce a firm's tax burden.

2 Methodological Approach

2.1 Empirical predictions

The corporate law that applies to a corporation in common law jurisdictions is determined by where it is incorporated. While a U.S. firm is subject to the corporate law in its *state* of incorporation (Delaware in most cases), an inverted firm is subject to the corporate law in its *country* of incorporation. Corporate law in turn can influence a firm's governance by affecting the legality of various anti-takeover defenses (Dammann (2014)) and through its definition and enforcement of the fiduciary duties of the board of directors (Kun (2004)). From the World Bank's Rule of Law index, we find that the countries where inversions are incorporated in have on average weaker rule of law as compared to the U.S. If this weakness also applies to their corporate law, then these countries are likely to offer weaker protection to minority shareholders. In this section we outline the predictions that result from this difference.

Executive compensation can serve an important governance role by linking managerial pay to value creation (Jensen and Murphy (1990); Mehran (1995)). Well governed firms will realize the power of compensation and use it as an important governance tool. On the other hand, compensation may also be a symptom of weak governance. Boards of weakly governed firms may award excess pay to their executives and provide a weak link between pay and performance. Consistent with this, Core et al. (1999) find that less effective governance structures are associated with higher cash-based compensation. Along the same lines, Bebchuk et al. (2003) find that executives of firms with stronger takeover protection receive compensation packages that are less sensitive to performance. The corporate law difference between inversions and U.S. firms will hence predict:

Prediction 1: *The total compensation of executives of inverted firms will be higher and be less sensitive to firm performance than comparable U.S. firms.*

A weaker corporate governance structure can also enable the manager to entrench herself. In

particular, self-interested managers may institute anti-takeover charter provisions that increase their protection from hostile takeovers. We employ the Bebchuk et al. (2009) entrenchment index which includes a subset of the 24 provisions tracked by the Gompers et al. (2003) as a measure of managerial entrenchment. In particular, the E-index assigns each firm a score from zero to six based on whether the firm has staggered boards, limits to shareholder amendments of the bylaws, supermajority requirements for mergers, supermajority requirements for charter amendments, poison pills and golden parachutes. A larger value of the index connotes a greater degree of managerial entrenchment.

Prediction 2: *Inverted firms will have a higher E-index value than comparable U.S. firms.*

To the extent the inversions in our sample are all classified as an U.S. issuer by the SEC and continue to be listed in an U.S. exchange they have to satisfy the SEC and stock market listing requirements. All the major U.S. exchanges impose corporate governance requirements on listed firms that affect the structure of the board of directors in terms of independence and committee composition (see the Internet Appendix 6). And as mentioned before, unlike foreign issuers, U.S. issuers are not allowed to opt out of the exchange governance rules. We thus expect:

Prediction 3: *Inverted firms will have similar levels of board independence and CEO-Chairman duality as comparable U.S. firms.*

Agency conflicts between managers and outside shareholders can distort the amount and accuracy of information disclosure by firms (Ajinkya et al. (2005) and Karamanou and Vafeas (2005)). Diamond (1985) theoretically shows that firms with less accurate information disclosure will have wider bid-ask spreads. The weaker protection for outside shareholders through corporate law would imply that investors may perceive an additional layer of information and agency costs. This, in turn, may translate into them being reluctant to invest and trade in these shares. This would predict that the shares of inversions will have less liquidity and greater information asymmetry.

Bushee and Noe (2000) and Chung and Zhang (2011) show that institutional demand for a stock is positively related to the amount of public information available about the firm and the strength of its corporate governance. The weaker minority-shareholder protection among inversions would mean less institutional share ownership in these firms. This forms the basis for our next prediction.

Prediction 4: *Inverted firms have lower stock liquidity, greater information asymmetry, and lower institutional investor ownership compared to U.S. firms.*

Prediction 4 would also imply that market based governance mechanisms and institutional monitoring may be weaker among inversions. A less liquid stock may also affect the ability of the board to tie executive compensation to the stock price. We explore this in our tests of *Prediction 1.*

If investors perceive inverted firms to have greater agency problems as compared to U.S. firms, then they are likely to put a lower value on the shares of such firms. Testing this is difficult because of the inability to model the expected stock price. Hence, we focus on a specific asset, namely cash, and compare the market value of corporate cash between inversions and U.S. firms. The greater agency costs among the inverted firms will predict that investors should put a lower value on cash with such firms.[5] A summary of our last prediction is as follows:

Prediction 5: *Ceteris paribus, investors will place a lower value on a dollar of cash of an inverted firm. The value of cash for inverted firms and U.S. firms should be positively related to the rule of law of the country of reincorporation.*

For all the tests above, we also implement a difference-in-difference procedure in which we compare the changes in outcome variables before and after the inversion to changes in outcome variables for the control group of U.S. firms. This allows us to control for time-invariant differences between inversions and the control sample.

2.2 Empirical Methodology

We test our predictions by comparing the inversions in our sample to a matched set of U.S. incorporated multinational firms. Since we only identify matches for the treated (inversions) observations, our estimates should be interpreted as the average treatment effect on the treated (ATT). The identification challenge we face is especially complex given the myriad outcome variables we model. The relevant matching covariates may vary based on the outcome variable modeled. On the other hand, employing a different set of matching covariates for each outcome variable will also mean that the sample for each test will vary. We overcome this challenge by repeating our estimates using two sets of control samples. The first set of matching covariates is common across the outcome variables while the second set is specific to each outcome variable and employs additional matching

[5]The lower tax rate of the inverted firms will predict that investors should put a higher value on the cash held by such firms as compared to the cash held by U.S. firms. Our tests will help understand if the tax effect or the governance effect dominates.

covariates. We describe the construction of the augmented control sample along with the discussion of our tests' results.[6]

We identify the common control sample by matching the inversions to U.S. multinationals on industry – identified by the historic GICS industry (six-digit code level)– financial year, *Log(Total assets*), *Market to book* and *ROA.* Specifically, for every inverted firm-year in our sample, we identify up to two unique control firm-years involving U.S. multinational firms that are the closest in terms of *Log(Total assets), Market to book and ROA* to the inverted firm-year (all variables used are defined in the Appendix). We require the matched observations to be from the same GICS industry and financial year as the inverted firm-year. We classify firms that report positive sales in at least one foreign subsidiary as a multinational and use the Mahalanobis distance to identify the closest match. This constitutes our base control sample and we refer to it as sample *CS1.* Since we have a large pool of potential control observations, we match without replacement to ensure greater power. This does not appear to be problematic as our treated and control samples are well matched in terms of covariates.

To control for additional covariates specific to an outcome variable, we include them as controls in the following regression model. We estimate:

$$y_{it} = \beta_0 + \beta_1 \times Treated_{it} + X_{it}\gamma + \alpha_i + \delta_t + \varepsilon_{it} \tag{1}$$

where the outcome variable y_{it} is one of *Total Compensation, Cash Compensation, Equity Compensation, Delta, E-Index, Spread, Turnover, Analyst dispersion*, *Institutional Ownership*, *Log(HHI Inst. own),* and *Avg. Institutional Ownership.* $Treated_{it}$ is a binary indicator that takes the value of 1 if the firm i at time t is an inverted firm, and it is zero otherwise. γ is a vector of coefficients and X_{it} is a set of controls. The specific control variables we include depend on the outcome variable being studied and includes lagged or contemporaneous values of one or more of *Log(Total assets), Market to book, ROA, Rated, Leverage, Capital expenditure, Volatility, Return, Bid-Ask spread, Marginal tax rate, Capital expenditure, Intangible assets, Gross PPE*, and *RD/Assets.* In all our tests we include industry fixed effects (α_i), time fixed effects (δ_t), and report standard errors that are robust to heteroskedasticity and that are clustered at the firm level.[7] For Compustat/CRSP

[6]The factors we need to control for are the ones that affect both the outcome variable modeled and the decision of the firm to invert. We choose to identify the control variables based on the outcome variable modeled.

[7]In additional tests, we also include *GAAP ETR, Cash ETR* as outcome variables to check whether the firms that we identify as inversions exhibit lower tax rate as a validation of our sample.

outcome variables, we include one observation per firm-year. For execucomp variables, we include all the executive-firm-year observations, thus the sample size is larger when using executive compensation variables.[8]

Since our matching covariates are all continuous variables, matching may not be exact, resulting in a conditional bias (Abadie and Imbens (2006)). We employ a regression model in addition to matching to ensure that we control for discrepancies between the treated and control samples in terms of covariates. When we estimate the above regression model on the treated and control sample that we identify by matching on additional covariates, the controls in the regression coincide with the set of matching covariates. In this case, our estimate of β_1 coincides with the bias corrected ATT estimate proposed in Abadie and Imbens (2011). In further discussion, we refer to this as "bias-corrected ATT".

We make two sets of assumptions to identify our effects. First, we assume that the treatment value is stable across units (the SUTVA assumption, see Wooldridge (2010)). This assumption requires that the treatment status of any unit does not affect the potential outcomes of the other units and that the treatments for all units are comparable. In our setting, the classification of one firm as an inversion is unlikely to affect the response of other firms to inverting. Moreover, since our criteria for identifying our sample - non-U.S. incorporation status and SEC classification - is the same for all units, the treatment is comparable across units.

Second, conditional on the matching variables employed, the assignment between an inverted firm and a control firm status is independent of the outcome variable. This is the conditional independence or unconfoundedness assumption. Since we only estimate the ATT, this assumption can be relaxed to require only that conditional on the matching covariates, the outcome variable in the control group is independent of the treatment (see Abadie and Imbens (2006)). While there is no direct way to check the validity of this assumption, we perform an indirect test to assess the extent of bias due to unobserved heterogeneity. Specifically, we estimate the Rosenbaum (2002) bounds that help us to understand the extent of unobserved heterogeneity between the treated and control observations required to overturn our conclusions. We estimate these bounds by repeating our analysis using a control sample identified using caliper matching. We explain this in Section 5. Further, for a subset of inversions for which we have financial data on both the pre- and post-inversion period, we implement a DID test. That is, we compare the changes in outcome variables

[8]In our sample, we have an average of five executives per firm-year observation.

before and after inversion to changes in outcome variables for the control firms. These tests help us control for all time invariant differences between the treated and control firms. We discuss this in greater detail in Section 5.

3 Data

We obtain data from several sources: S&P Capital IQ, Bloomberg, Compustat, CRSP, ExecuComp, Institutional Shareholder Services (ISS), Thomson Reuters Ownership Database and the SEC. We identify the sample of inversions from Capital IQ and Bloomberg using the methodology described below. We obtain financial data for these firms and the control sample from the North-America annual Compustat database and stock price information from CRSP. We obtain information on executive compensation from the S&P ExecuComp database and information on anti-takeover provisions and board structure from the ISS database. We obtain institutional ownership from Thomson Reuters. We complement these data sources with data from SEC filings when required. The variables we use in our analysis are defined in the Appendix.

We obtain the rule of law index from the Worldbank's Worldwide Governance Indicators.[9] This index captures the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. The index ranges from -2.5 (weak) to 2.5 (strong) governance performance. For ease of interpretation, we use the percentile rank of the country in our tests.

We obtain the corporate tax rates for the countries where our sample firms are incorporated in from various sources including the KPMG's Corporate Tax Rate Surveys, PwC Worldwide Corporate Tax Summaries, and the Ernst & Young Worldwide Corporate Tax Guides covering the 1996-2013 period. We use the statutory marginal corporate tax rate of the highest tax bracket including federal taxes and relevant state and local taxes. From the corporate tax sources above we also obtain information on whether the corporate tax domicile is determined by the place of incorporation or the main place of the management (real seat). For companies incorporated in countries that use real seat we use the information in the 10-K income tax footnote to confirm that the country of incorporation is indeed the tax domicile/residence of the parent company.

[9] Available at http://info.worldbank.org/governance/wgi/index.aspx#home.

3.1 The Sample

The inversion sample consists of 438 firm-year observations over the 1996-2013 period for 66 firms (see Tables 1 and 2, and the Internet Appendix, Table B.3). We start with the sample of all publicly traded U.S. firms that change their country of incorporation from the U.S. to overseas according to the Bloomberg list of inversions.[10] Using the SEC annual list of foreign private issuers (FPIs) for the period 1996-2013 (the FPI list), we exclude seven companies that become foreign issuers after the inversion.

We also search the CRSP/Compustat merged database and the S&P Capital IQ database for all publicly traded firms that change their country of incorporation from the U.S. to overseas sometime after their IPO during the 1996-2013 period, and remain a U.S. issuer after the inversion. We identify 17 additional inversions through this second procedure.

To ensure that we only include U.S. issuers, we verify that after inverting, all companies in our sample file annual reports on forms 10-K, current reports on form 8-K, and proxy statements on form DEF-14A as per the SEC rules. Finally, we manually check the 10-K filings to ensure that the firms are not subject to Section 7874 (for inversions after 2003) and that the firms are considered as foreign for federal tax purposes. This ensures that the firms in our treated sample truly invert.

Using a variety of data sources such as SEC company filings, company websites, Capital IQ, and Factiva news articles, we classify the inversions in our sample as either a Pure inversion or a Restructuring inversion. Restructuring inversions are further classified as either a merger, LBO, bankruptcy, or a spin-off inversion. Below are the definitions of these sub-groups:

- *Pure inversion:* A U.S. company that reincorporates in a new country with no material change in its business and assets. The same existing shareholders own the shares in the new foreign parent company. We have 21 such firms in our sample.
- *Restructuring inversion:* Usually accompanied by a material change in either the company's ownership, business, or assets. It can result from one of the following transactions. We have 45 of such firms in our sample.
  - *Merger inversion:* The origin of the foreign corporation can be traced back to a merger

[10] See http://www.bloomberg.com/graphics/infographics/tax-runaways-tracking-inversions.html. For data availability reasons, our sample stops in 2014.

or acquisition transaction with a U.S. company. More than 50% of the assets of the merged entity originates from a former U.S. company, or more than 50% of the shares of the new entity are owned by former U.S. shareholders (this criteria serves to exclude inbound-cross-border mergers deals).

- *LBO inversion:* A publicly-traded U.S. firm or one of its corporate divisions is taken private in a leverage buyout transaction, followed, a few years later, by an IPO in which the company emerges with a foreign-incorporation.
- *Bankruptcy inversion:* A new foreign-incorporated company emerges with at least 50% of its assets originating from a bankrupt U.S. corporation.
- *Spin-off inversion:* A U.S. or a foreign-incorporated company spins-off a division as an independent foreign-incorporated firm publicly listed in a U.S stock exchange.

We summarize our sample of inversions in Tables 1 and 2. Table 1 provides a listing of our sample categorized into different subgroups that are members of the S&P 500 index as of December 31, 2013. We have 19 such firms with the largest being Eaton Corporation Plc. with a market capitalization of over $36 billion as of December 31, 2013.

Panel A of Table 2 provides the break-down of our sample into the two subgroups. The largest subgroup involves restructuring inversions (45 firms) primarily consisting of merger and LBO inversions. Merger inversions have replaced pure inversions as the most popular way for American companies to invert as a consequence of the passage of the American Jobs Creation Act that made pure inversions ineffective in reducing taxes. Recent examples of merger inversions include Actavis Plc., Eaton Corporation Plc., and Perrigo Plc., all S&P 500 firms, which merged with, respectively, Warner-Chicott, Cooper Industries, and Elan, all Irish companies. The U.S. shareholders ended-up with between 70% to 80% of the new combined Irish entity.[11] We have a total of 6 LBO/Bankruptcy inversions and 10 spin-off inversions in our restructuring inversions sample. A prominent example of a LBO inversion is Avago Technologies Ltd., a Singaporean company formed when the semiconductor division of Agilent Technologies was acquired by KKR and Silver Lake Partners. Another example is Seagate Technology Plc. which first incorporated in the Cayman Islands, then later in Ireland. In the Seagate LBO, the tax savings resulting from the change in incorporation was a big

[11] The merger inversion frenzy is fueling an M&A boom. Since the beginning of 2014, 14 new merger inversions have been announced. ("Race to cut taxes fuels urge to merge,", Wall Street Journal, dated July 14, 2014). Companies are rushing to do a deal before new legislation closes this window of opportunity.

source of value creation.[12] Delphi Automotive Plc. (incorporated in Jersey, a possession of the British Crown) is a prominent example of a bankruptcy inversion. Delphi Automotive Plc., once part of GM and the world's largest auto-parts maker, emerged from bankruptcy in 2009 as a foreign corporation under the ownership of JPMorgan Chase and several hedge funds including Elliot Associates, Silver Point Capital, and Paulson & Co. The company is currently facing pressure from the IRS to file taxes as a U.S. based company.[13]

Panel B of Table 2 provides the distribution of our sample (in terms of firm-years) during 1996-2013 by country of incorporation and transaction type. More than two-thirds of our sample are incorporated in a tax haven as defined in Hines and Rice (1994) and Dharmapala and Hines (2009). The top three tax havens are Bermuda, Cayman Islands, and Ireland. Pure inversions are almost exclusively incorporated in tax havens (200 of 208 firm-year observations).

3.2 Summary statistics

Table 3 provides the summary statistics of the inversions in our sample and for a sample of all U.S. multinationals. We categorize the variables we use in our analysis into three groups: matching variables, control variables, and outcome variables. We find that there are systematic differences between pure and restructuring inversions and between the inversions and the sample of U.S. multinationals. Focusing on *Log(Total assets),* we find that pure inversions are larger than restructuring inversions and both groups of inversions are significantly larger than the average U.S. multinational. Firms that invert through a pure inversion have a lower average *Market to book* ratio and higher *ROA* as compared to firms that invert through a restructuring inversion. We also find that the average U.S. multinational has a higher *Market to book* ratio and lower *ROA* than the sample of inversions. The systematic differences between our sample of inversions and the U.S. multinationals motivates our decision to constrain the control sample to those multinationals that look similar to the inversions on observable characteristics.

Focusing on mean values, we find that consistent with pure inversions involving larger firms,

[12]Seagate's average effective tax rate in the last 12 years since the reverse IPO in 2002 was less than 1%. The internal rate of return of over 160% per year of the LBO sponsors in the Seagate LBO can be partly explained by the high IPO valuation obtained in anticipation of future tax savings. These tax savings are substantially more significant than the savings with interest tax shields associated with high leverage during the short two-year period the company stayed private, which is much of the focus of the finance literature (see the Harvard Business School case Andrade et al. (2001), for more on the Seagate LBO).

[13]See "Delphi Vows to Protect U.K.-Based Status, Fight IRS," Wall Street Journal, August 8, 2014. Delphi is incorporated in Jersey.

we find that they are more likely to have a bond rating as compared to restructuring inversions. Both pure inversions and restructuring inversions spend less on R&D as a proportion of total assets as compared to the average U.S. multinational. In terms of outcome variables, interestingly, we find that inversions have slightly higher institutional ownership and greater dispersion in analyst earnings forecast. We also find that firms that invert through a restructuring inversion have a higher bid-ask spread as compared to both pure inversions and U.S. multinationals.

Table 4 compares the inverted firm-year observations in our sample to the multinational control firms that we identify by matching on GICS industry, year, *Log(Total Assets)*, *Market to book* and *ROA* (referred to as control sample *CS1*). Our control sample is very similar to the inverted sample. The differences are not economically or statistically significant. This is the case not just for matching variables but also for some control variables such as *R&D/Assets, Return,* and *Stock Volatility.* Specifically, from the comparison of the distribution and median of matching variables for our treatment and control firms we can conclude that these two groups of variables are statistically equal.

From the comparison of the control variables we find that inverted firms are less likely to have bond ratings (see the comparison of the 25^{th}percentile) and spend less on acquisitions (see the comparison of the 75^{th} percentile). Given these differences, we control for these variables in our multivariate regressions. In the last column we report the scaled difference. This is similar to a t-statistic and helps estimate the goodness of the match. We find that the absolute value of the scaled difference is much smaller than one quarter, a rule of thumb suggested by Imbens and Rubin (1997) beyond which linear controls in regression may be problematic. This offers assurance that misspecification in the linear regression will not significantly bias our estimates.

4 Empirical Results

4.1 Univariate Results

In Table 5 we report the univariate ATT without any bias correction. The second and third columns report the mean values of the outcome variables for the inversions and control sample (*CS1*) while the fourth column reports the difference in means and the fifth column reports the p-values for the difference to be zero. Focusing on the fourth column, we find that the inversions in our sample

have significantly lower effective tax rate than the control firms.[14] Consistent with *Prediction 1*, we find that executives in inversions have a higher executive compensation and a higher cash-based compensation. We also find that the portfolio *Delta* is lower in firms that invert. We do not find a statistical difference in terms of the E-index between inversions and the control firms. Consistent with *Prediction 4*, we find that inversions have a higher dispersion in analyst earnings forecast. The lower stock liquidity of the inversions indicates weaker market-based governance for these firms and also greater information asymmetry. We also obtain some weak evidence for lower institutional ownership among inversions, although the difference is not statistically significant at conventional levels. Finally, we find that inverted firms have more concentrated institutional ownership, as represented by a higher value of *Log(HHI Inst. own)*.

4.2 Multivariate Results

In Table 6 we provide the results of our multivariate tests comparing the levels and sensitivity of executive pay of inversions and control firms. We include all executive-firm-year observations in each estimation. In column (1), we report the estimate of equation (1); the dependent variable is *Log(Total Compensation)* and the control sample is *CS1*. To control for residual differences between the inversions and control firms, we follow previous studies and include lagged values of *Log(Total assets), ROA, Market-to-Book, Leverage, R&D/Assets, Return, Bid-Ask spread, Volatility,* and a binary variable that takes the value of one if the executive is the CEO and it is zero otherwise. From the coefficient on *Treated* we find that executive pay is higher in firms that invert. However, as compared to our estimate from Table 5, the coefficient is not significant. The coefficients on the control variables indicate that larger firms and firms with higher market-to-book, stock return and lower stock volatility have higher executive compensation. In column (2) we repeat our tests using a control sample that we identify by matching on *Log(Total Assets), Market to Book, ROA, Volatility, Return, Leverage*, and *RD/Assets*. In this column, the set of control variables and the set of matching covariates are the same. Thus, column (2) reports the estimate of biased-corrected ATT. We find this estimate to be slightly larger than the one in column (1) but it is still statistically insignificant.

[14] We find that the mean *GAAP (Cash) ETR* is 14.7% (12.5%) for the inverted firms as compared to 21.3% (19.7%) for control firms. The lower *Cash ETR* as compared to *GAAP ETR* for control firms reflects the fact that many of these firms may defer paying U.S. taxes on overseas profits by retaining them abroad. This is consistent with the fact that the inversions in our sample are not subject to Section 7874, thereby validating our sample selection process.

In columns (3) and (4) we repeat our tests with the *Log(Cash Compensation)* as our dependent variable. We find that inversions have 0.151 higher *Log(Cash Compensation)* as compared to control firms. For the median executive-firm-year observation in our sample with a cash based compensation of $449,880, this represents a 16.3% ($exp(0.151) - 1$) higher amount. In column (4) we repeat our tests using the matched sample with the additional set of covariates and obtain similar results.

In columns (5) we compare the mix of cash and equity based compensation for executives in inversions and control firms by modeling *Equity pay*. The coefficient on $Treated$ indicates that the percentage of equity compensation of inversions is 5.4% lower than that for control firms. The median executive in our sample obtains 65.7% of her pay in the form of equity. Thus, our coefficient estimate indicates that executives in inversions obtain 8.21% lower equity based pay. In column (6) we compare the percentage of equity pay between inversions and our augmented control sample and find similar results. While the coefficient on $Treated$ is smaller than the one in column (5), it remains statistically significant. Finally, columns (7) and (8) compare *Delta* of the executive's portfolio between inversions and control firms. As in Edmans et al. (2009), we scale the *Delta* of each executive's portfolio by the executive's total compensation. We find that *Delta* is 25.84% ($exp(-0.299) - 1$) lower for executives in firms that invert. In column (8) we repeat our estimation using our alternate matched sample. While the coefficient on $Treated$ is negative, it is not significant. Taken together, our results are consistent with *Prediction 1.* These findings highlight the differences in the structure of executive pay between inversions and control firms. Relative to the set of matched U.S. firms, the executive compensation in firms that invert includes more cash compensation and a lower fraction of equity pay. The executive wealth is also less sensitive to stock performance.

In Table 7 we test *Prediction 2* and compare the corporate governance provisions of treated and control firms. In column (1) our outcome variable is *E-index* and the control sample is *CS1.* The coefficient on $Treated$ indicates that firms that invert have on average more anti-takeover provisions relative to control firms. Compared to the median firm in our sample that has an *E-index* value of 2, firms that invert have 17.9% higher value. The coefficients on the control variables indicate that firms with larger market-to-book ratio and lower profitability have higher levels of the E-index. In column (2) we repeat our tests using an augmented control sample identified by matching on *Log(Total Assets), Market to Book, ROA, Leverage, Capital expenditures, and R&D expenditures.*

The coefficient on *Treated* remains positive and its statistical significance is larger. These results are consistent with *Prediction 2.*

In columns (3)-(8) we test *Prediction 3* and study the board size and board structure of firms that invert. From the coefficient on *Treated* in columns (3) and (4), we find that firms that invert have a smaller board. As compared to the median firm in our sample that has 9 directors on its board, firms that invert have approximately one less director. In columns (5)-(8) we investigate whether board structure is different between treated and control firms. We capture the structure of the board by the fraction of independent directors as well as by a dummy variable that identifies firms in which the CEO is also the chairman. Consistent with *Prediction 3,* we do not find a statistically significant difference between firms that invert and our control sample in terms of the extent of board independence and CEO-chairman duality.

In Table 8 we test *Prediction 4* by comparing the stock liquidity and dispersion in analysts' earnings forecast of inversions and control firms. In column (1) the dependent variable is *Spread* and the control sample is *CS1.* We also include contemporaneous values of *Log(Total assets), Leverage, Rated, Capital expenditure,* and *Volatility* as controls along with industry and time fixed effects. We find that the coefficient on *Treated* is positive but not significant. Consistent with prior literature, the coefficients on the control variables indicate that smaller firms and those with more volatile stock returns have a higher bid-ask spread. We also find that rated firms have a higher bid-ask spread, which is surprising. In column (2) we repeat our tests using a control sample that we identify by matching on *Rated,* and *Volatility* in addition to those employed in identifying *CS1.* We find that the coefficient on *Treated* continues to be positive but it is now significant. We also find our estimates to be economically significant. In comparison to the average control firm, inverted firms in our sample have a twice as large bid-ask spread (.492/.446). Thus, our results in columns (2) show that inverted firms have a higher bid-ask spread as compared to control firms.

In columns (3) - (4) we repeat our tests with stock *Turnover* as the dependent variable and again find that inversions have lower share turnover as compared to control firms. The estimates are statistically significant when we employ the augmented control sample in column (4).

In columns (5) - (6) we compare the level of dispersion in analyst earnings forecast for inversions and control firms. In column (5) our control sample is *CS1* and we find that firms that invert have higher dispersion in analyst earnings forecast. This is consistent with these firms having greater

information asymmetry. From the control variables we find that rated firms and firms with higher leverage have higher dispersion in analyst earnings forecast. In column (6) we repeat our tests with the augmented control sample after we match on *Rated* and *Volatility* in addition to the variables employed in identifying *CS1*. We find that while the coefficient on *Treated* is marginally smaller, it continues to be statistically significant. Summarizing, our results in Table 8 indicate that inversions on average have a higher bid-ask spread, lower turnover and greater dispersion in analyst earnings forecast as compared to control firms. This highlights that the difference in the corporate governance between inversions and control firms may add an extra layer of opacity and thus deters investors from investing in these shares. The lower stock liquidity may also reduce the effectiveness of market based governance mechanisms and go towards explaining the lower amount of equity pay in these firms. These results are consistent with *Prediction 4*.

In Table 9 we compare the level of institutional shareholding in inverted firms and control firms. We include contemporaneous values of *Log(Total assets), Volatility, Spread, Market-to-Book, Return, Leverage*, and *Cash*, as controls. Column (1) reports the estimates when we use the control sample *CS1*. We find that the coefficient on *Treated* is negative, however it is not significant at conventional levels. An interesting question, given the lower stock liquidity for inverted firms, is whether there is something unique about their ownership structure that limits the costs to shareholders that are generally associated with a lower stock liquidity. If inverted firms have more concentrated ownership structures then their shareholders may not mind the fall in stock liquidity. To test this in columns (3) & (4) we compare the Herfindahl index of institutional ownership, *Log(HHI Inst. Own)*, of inversions and control firms. Our control sample is *CS1* in column (3) and the augmented control sample in column (4). We find that the coefficient on *Treated* is positive and significant in column (4). This indicates that the Herfindahl index of institutional ownership is higher for inversions as compared to control firms, consistent with inverted firms having a more concentrated institutional ownership structure.[15] In columns (5) and (6) we repeat our tests with the *Log(Avg. Inst. Ownership)* as the dependent variable and again find the coefficient on *Treated* to be positive and significant. Thus, the average institutional investor in an inverted firm holds a larger percentage of the outstanding shares as compared to the average institutional investor in a control

[15] A possible concern with this result is the extent to which the lower stock liquidity of inversions is due to their more concentrated institutional share ownership. While this is a legitimate concern, it is important to note that the effect of ownership structure on stock liquidity will depend on the level of concentration of both institutional and non-institutional shareholders. As we show above, inversions on average have lower institutional ownership. Lacking measures of concentration of non-institutional shareholders, we are not able to evaluate this issue fully.

firm. Summarizing, our evidence in Table 9 shows that while inverted firms have a slightly lower institutional share ownership as control firms, they have more concentrated institutional ownership. Furthermore the average institutional investor in an inverted firm holds a larger ownership stake.

In Table 10 we test *Prediction 5* by comparing the value of corporate cash using the methodology in Faulkender and Wang (2006). Our dependent variable is the size and book to market adjusted annual abnormal return. In these tests we include all U.S. firms with financial data in CRSP/Compustat as the control sample. That is, we do not confine the sample to inverted firms and matched control firms. We do this for two reasons. The first one is to increase the power of our tests and second because the identification issues are less severe in these tests given our dependent variable is the risk-adjusted excess *Return*. Our main independent variable is $^{\Delta Cash}/_{Mkt.Cap}$, the coefficient which measures the market value of a dollar of cash on the firm's balance sheet. To test if cash with an inverted firm is differentially valued, we include the interaction term $Inverted \times {}^{\Delta Cash}/_{Mkt.Cap}$ along with *Inverted.* We include contemporaneous values of *Leverage* along with changes in *Earnings, Non-cash assets, Interest expenses,* and *Dividends,* all normalized by the *Market capitalization.* We also include the interaction term between the change in *Cash* and *Leverage,* lagged values of *Cash/Market Capitalization,* and *Inverted*. Column (1) reports the estimates with firm and year fixed effects along with standards errors clustered at the industry level.[16] Column (2) reports the estimates that include within industry year fixed effects and standard errors clustered at the industry level. Column (3) presents the results of the model where the standard errors are clustered both at the year and industry level (Petersen (2009)) while Column (4) reports the estimates from the Fama-Macbeth regressions. In Column (5) we follow Gormley and Matsa (2014) and estimate the marginal value of cash using the *Return* as the dependent variable and including benchmark portfolio-year fixed effects.

We find that the coefficient on $Inverted \times {}^{\Delta Cash}/_{Mkt.Cap}$ is negative and significant in all columns. Our results indicate that, ceteris paribus, investors put a lower value on cash on an inverted firm's balance sheet as compared to that on a control firm's balance sheet. Our estimates are economically significant. As shown in the last two rows, our estimates in column (1) show that while the average value of the marginal dollar of cash on a control firm's balance sheet is \$1.30, investors only assign a \$1.03 value on the marginal dollar of cash on an inverted firm's balance sheet. The higher than \$1 value of internal cash for the average control firm during our sample period is reasonable given

[16] In this specification, firm fixed effects control for the potential constant unobserved heterogeneity between U.S. domestic firms, U.S. multinationals, and inverted firms.

that our sample spans the financial crisis when internal liquidity was quite valuable.

As mentioned before, there are two opposing factors that affect the value of cash on an inverted firm's balance sheet. The first is the lower marginal tax rate, which is likely to increase the value of cash on an inverted firm's balance sheet. The second is the weaker corporate law, which is likely to reduce the value. The negative coefficient on $Inverted \times {}^{\Delta Cash}/_{Mkt.Cap}$ in Table 10 indicates that the effect of the weaker rule of law dominates the effect of the lower tax rate. In the next table we explore this further.

In Table 11 we analyze the interplay between the rule of law in the country of incorporation and the marginal value of corporate cash. We use the rule of law index from the Worldbank's Worldwide Governance Indicators. To allow for ease of interpretation of the coefficients, we compute in-sample percentile ranks of rule of law index and use 100 minus a country's percentile rank, *[100-Percentile rank]* as our main variable to capture a country's rule of law. Thus, a one unit increase in *[100-Percentile rank]* indicates a percentile *fall* in the ranking of the country in terms of rule of law. We repeat our tests in Table 10 after including *[100-Percentile rank]* and $[100 - Percentilerank] \times {}^{\Delta Cash}/_{Mkt.Cap}$. Table 11 reports the estimates. The negative and significant coefficient on the interaction term in columns (1) to (5) indicates that the marginal value of cash is lower in countries that rank lower in terms of the rule of law. Our estimates are also economically significant. The size of the coefficient on the interaction term indicates that a one percentile decrease in the country's ranking is associated with a \$0.009 decrease in the value of cash for firms incorporated in the country. These results highlight the cost firms face when they incorporate in countries that rank lower in the rule of law index. To further understand the economic significance of this coefficient, note that a popular country for inversions is Bermuda whose in-sample percentile rank is 33 points lower than that of the U.S. Thus, the reincorporation of a U.S. corporation to Bermuda is associated with a \$0.29 decrease in the value of cash, mainly on account of the weaker rule of law in the new country of incorporation.

An important factor that is likely to bias our estimates on $[100-Percentilerank] \times {}^{\Delta Cash}/_{Mkt.Cap}$ is the fact that in our sample there is significant positive correlation between a country's rule of law and marginal tax rate (53%). Countries that rank high in the rule of law index also have higher marginal tax rates. To the extent that a higher marginal tax rate reduces the value of internal cash, this is likely to bias our estimates downward. Furthermore, the correlation between *[100-Percentile rank]* and *Tax rate* is sufficiently strong so that when we include both at the same time, we do not

obtain meaningful estimates.

In the next section we discuss the results of various robustness tests.

5 Robustness tests

5.1 Differences-in-difference Analysis

We repeat our tests for a subsample of inversions for which we have pre- and post-inversion financial data using a DID approach. That is, we compare the univariate changes in outcome variables for the inverted sample around the time of inversion to changes for a matched set of control firms. We identify the control firms in the year before inversion by using the same procedure used to identify *CS1*. This results in 44 treated firms and 69 control firms.[17] Because of the fewer treated firms and small power in these tests, we do not employ the DID estimates as our main analysis. We focus on the three year period before and the three year period after the inversion including the year of the inversion. Note that this difference-in-differences specification is equivalent to controlling for firm fixed effects and thus our estimates are robust to time-invariant firm-level heterogeneity. Table 12 reports the summary statistics for treated and control firms in the year of matching. The distribution of matching and control variables is statistically indistinguishable. This ensures that our matching is balanced. In all specifications, we include the set of matching covariates, GICS and year fixed effects. Standard errors clustered at the firm level.

Table 13 reports the DID estimates. Columns (1) - (3) report the mean difference in executive pay for treated and control firms in the year of matching. While we find that the increase in the *Cash* based compensation for the treated firms following the inversion is larger than the increase for control firms, the difference-in-difference is positive but not significant. Consistent with the findings in Section 4, we find that the percentage of *Equity Compensation* is 5.1% lower for the treated firms after the inversion and this is larger than the change for control firms. The difference-in-difference coefficient is negative and statistically significant.

In column (5) we report the difference in E-Index for treated and control firms before and after the inversion. While the average E-Index increases for the treated firms post-inversion it decreases

[17]Thus, we do not have pre- and post-inversion financial data for 22 of the 66 inversions. These 30 are primarily restructuring inversions.

for the control firms. Thus, relative to control firms, treated firms increase the number of provisions by about 1.1 following the inversion. This is consistent with our previous results that show that the managerial entrenchment, as measured by the E-index, is larger among firms that change their tax jurisdiction.

Columns (6)-(8) report the DID estimates for measures of board structure and as expected we do not find any significant difference between the treated and control firms in terms of board size and CEO-chairman duality. However, relative to the change for the control firms, the fraction of independent directors increases for the treated firms after the inversion. However, the change in the fraction of independent directors is statistically equal to zero for firms that invert. This is consistent with the view that firms that invert and are classified as U.S. issuers cannot opt-out of corporate governance requirements of U.S. stock exchanges which regulates governance best practices and board structure (see Foley et al. (2014)).

In Columns (9)-(11) we report the DID estimates for *Spread, Turnover*, and *Analyst dispersion.* While the change in *Spread* is not significant for firms that invert, stock liquidity increases for firms in the control group relative to treated firms. This is reasonable given that we compare the latter time period (three years after inversion) to the earlier time period (three years before inversion). Overall, relative to the control firms, inverted firms have a 0.334 higher *Spread*.

In Columns (12) - (14) we focus on institutional ownership and find that while *Institutional ownership* increases for control firms, it decreases for firms that invert. From column (12) we find that relative to the control firms, the average institutional holding decreases after inversion.

Overall, our DID results are consistent with our matching results and show that inverted firms experience a decrease in the sensitivity of executive compensation, an increase in the E-index, a decrease in stock liquidity and a decrease in institutional ownership following an inversion.

5.2 Market Reaction to Inversions

In this subsection we compute the stock price reaction to announcements of inversion plans. To the extent that stock prices incorporate future after-tax cash flows associated with the inversion, the announcement returns provide an indication of the expected net benefit from inversions.[18] We

[18]See also Desai and Hines (2002), Chorvat (2015), and Rao (2015) for other studies evaluating the announcement returns of inversions.

compute the benchmark model using the daily returns 246 to 46 days prior to the announcement date and construct the cumulative abnormal returns for each firm using a five-day window following the announcement and a ten-day window centered around the event. We are able to compute this for 39 announcements.

Figure 1, Panel A and B, depict the distribution of cumulative abnormal returns. The average cumulative abnormal return over the five-day period after the announcement is 3.9%, and it is 6.0% over a ten-day window centered around the announcement. The distribution of market reactions is consistent with Desai and Hines (2002); 45% of the firms in our sample experience a negative market reaction following the announcement. The positive average is in part due to the presence of some very large positive market reactions to the announcement. For instance, Valeant Pharmaceuticals and Endo International experience 34.4% and 40.2% cumulative abnormal returns following the inversion announcement on 06/21/2010 and 11/05/2013 respectively. The negative market reaction indicates that the costs of inverting or potential adverse changes in the U.S. tax code may offset the benefits of inverting.

We perform two tests to examine the relationship between the market reaction to the inversion announcement and the characteristics of the country of reincorporation. First, we relate the cumulative abnormal returns to the marginal tax rate and the rule of law in the country of reincorporation. Table 14 presents the results. The dependent variable in columns (1) - (3) is the cumulative abnormal return over a five-day window while the dependent variable in columns (4) - (6) is the cumulative abnormal return over a ten-day window centered around the event. From columns (1) and (4) we find that while the coefficient on $Marginal\ Tax\ rate$ is positive, it is not significant.

In columns (2), and (5) we relate the cumulative abnormal return to the rule of law in the country of incorporation. The coefficient on $[100 - Percentile\ rank\ ROL]$ in column (2) indicates that a 1 percentile decrease in the rule of law in the country of reincorporation is associated with 1.2% less cumulative abnormal returns after the announcement. We obtain similar results in columns (3), (5), and (6). Overall, these results suggest that investors do anticipate some costs when firms invert to a country with weaker rule of law.

As a second test, we estimate the present value of the tax savings associated with the reincorporation. We do this by multiplying the change in the $GAAP\ ETR$ after the inversion with the

average earnings before taxes in the three years prior to the inversion. We use a multiple of 10 to compute the present value of the tax savings. While this computation is subject to restrictive assumptions, it provides an indication of the expected benefits from reincorporation. We find that for 60% of the firms in our sample, the change in the market value after the inversion announcement is less than our estimate of tax savings.[19] This is consistent with investors perceiving some costs on inversions.

5.3 Other tests

We perform two additional (unreported) tests. First, we redo our tests using caliper matching. We use the Rosenbaum (2002) bounds to evaluate the robustness of our results to unobserved heterogeneity and outliers.[20] Unobserved differences between firms that invert and control firms can potentially bias our estimates. While we don't have an instrument for a firm's inversion status to overcome this problem, in Table B.5 we estimate the Rosenbaum (2002) bounds to understand the robustness of our results. The Rosenbaum bounds provide an estimate of the amount of unobserved heterogeneity required to overturn our conclusions. In Table B.5 we provide estimates of the Average Treatment Effect on the Treated (ATT) for the different outcome variables along with the corresponding Rosenbaum (2002) bounds. We use caliper matching to estimate the ATT as we cannot estimate the bounds for the closest match that we implemented earlier. We continue to find that executives in firms that invert receive more cash-based compensation, the percentage of equity-based compensation and delta is lower than those of executives in comparable U.S. multinational firms. Thus, their compensation is less sensitive to stock prices. Moreover, inverted firms have higher *E-Index* value, less stock liquidity and lower institutional ownership. Using caliper matching, we find that firms that invert have on average on fewer directors relative to the set of control firms. Note that we only report the estimate of the bound only for significant estimates. Any value of the bound greater than one indicates a significant effect with a higher value indicating a more robust result. For example, the bound of 1.7 for *E-Index* indicates that unobserved heterogeneity should be strong enough to increase the odds ratio of being treated by 70% to overturn our conclusion of a higher *E-Index* among firms that invert. We find that the bound is the lowest for *Spread* and

[19] This test is available upon request.

[20] Note that the results from caliper matching and nearest neighbor matching are not entirely comparable. This is because when we do caliper matching, we put more weight on treated observations that look similar to control observations – since such observations are likely to have more control observations for a given caliper size. On the other hand, with nearest neighbor match, we have two control observations for every treated observation.

Board Size implying that this is the least robust of our findings. Overall the analysis indicates our results to be robust to unobserved heterogeneity.

Second, we redo our tests by splitting the set of treated firms between *Pure Inversions* and *Restructuring Inversions*. We use U.S. incorporated firms identified by matching on industry, year, and *Log(Total assets), Market to book* and *ROA* to identify *CS1* as control observations for both type of inversions. We implement these tests using a model similar to (1) after including two dummy variables, *Pure Inversions* and *Restructuring Inversions* that identify the pure inversions (and their control observations) and restructuring inversions (and their control observations) respectively, along with interaction terms between the two variables and *Treated*. We do not find any statistically significant difference between the two groups. This indicates that our conclusions apply to both *Pure Inversions* and *Restructuring Inversions*.

6 Conclusion

There is a flurry of activity among American companies to change their incorporation to countries with a lower corporate tax rate. Firms that invert are large as evidenced by the fact that 19 of them are included in the S&P 500 index. Just since the beginning of 2014, more than 15 new merger inversions have been announced, prompting legislative action to stop the reincorporation outside the U.S. In this paper, we collect a comprehensive sample of inversions to shed light on an unexplored aspect of inversion, namely its effect on firm governance.

While an inversion changes the applicable corporate law from U.S. state law to that in the country of reincorporation, our analysis reveals that after an inversion most firms continue to be listed in an U.S. exchange and are classified as a "U.S. issuer" by the SEC. Thus, they enjoy the full protection of U.S. Federal Securities Laws (Stulz (1999); Coffee (1999)). To the extent the federal securities laws are an effective substitute for corporate law, an inversion should not have a significant effect on firm governance.

Our analysis indicates that firms that invert have weaker governance than comparable U.S. firms. Executives in inverted firms receive a larger proportion of cash-based compensation and their wealth is also less sensitive to stock price. Firms increase the number of anti-takeover charter provisions after an inversion. In addition, firms that invert have less liquid stock with a higher bid-

ask spread and less institutional ownership. Thus market-based governance is also weaker among these firms. We also find that investors put a lower value on the cash on inverted firm's balance sheet especially if the firm inverts to a country that ranks low in terms of rule of law. Overall, our results highlight that despite enjoying the full protection offered by the U.S. Federal Securities Laws, inverted firms have weaker governance than comparable U.S. firms.

The gap between the corporate tax rate in the U.S. and other OECD countries is increasing. The average corporate tax rate among OECD countries was reduced from 33% in 2000 to 25% in 2013. Furthermore, unlike most OECD countries, the U.S. uses the worldwide taxation system as opposed to the territorial taxation system. For example, countries like the U.K., Canada, and Switzerland have recently adopted the territorial taxation system, and their corporate tax rate is now 15% less than the U.S. corporate tax rate. While such corporate tax differences may prompt more firms to explore the possibility of inverting, when considering a transaction, we believe firms (and shareholders) should keep in mind the costs documented in this paper. We hope our work will add an important voice to the ongoing debate on this growing and important phenomenon.

Appendix: Variable Definitions

- *Treated:* A dummy variable that identifies firm-year observations of inverted firms for which there is at least one control firm in the matched sample.

Compustat Variables

- *Cash/TA:* The ratio of cash and short-term investments and the book value of total assets.
- *ROA:* The ratio of earnings before interest, depreciation, and taxes to the book value of total assets.
- *Market-to-Book:* The ratio of the sum of the market value of equity and the book value of debt to the book value of total assets.
- *Leverage:* The ratio of the book value of total debt to the book value of total assets.
- *R&D/Assets:* The ratio of R&D expenditures to the book value of total assets.
- *Acquisitions:* The ratio of acquisition expenditures to the book value of total assets.
- *Dividends:* The ratio of total dividends paid to the book value of total assets.
- *Net Working Capital:* The ratio of accounts receivable plus inventories minus accounts payables to total sales.
- *Capital expenditure:* The ratio of capital expenditures to the book value of total assets.
- *Earnings:* Operating income after depreciation.
- *Non-Cash Assets:* Book value of total assets minus the book value of cash and short-term investments.
- *Rated:* A dummy variable that identifies borrowers who have an unsecured long-term credit rating.
- *Interest:* Interest expense from the income statement.
- *Dividends:* The ratio of total dividends paid to the book value of total assets.
- *Gross PPE:* The ratio of gross property, plant and equipment divided by total assets.

Stock Market Variables

- *Spread:* The ratio of the closing ask minus the closing bid to the closing price.
- *Share Turnover:* The yearly average of daily ratio of share volume to the number of shares outstanding.
- *Analysts Dispersion:* Standard deviation of the analysts earnings forecast.
- *Abnormal Returns:* Difference between the Return and the benchmark return of the 25 size and book-to-market portfolio.
- *Return:* The annual return on the firm's stock.

Institutional Ownership Variables:

- *Institutional Ownership:* The ratio of total 13-F institutional ownership to the number of shares outstanding.
- *Log(HHI Inst. own):* Log of the Herfindahl-Hirschman Index of ownership concentration.
- *Log(Avg. Institutional Ownership):* Log of the ratio of total 13-F institutional ownership to the number of shares outstanding divided by the number of 13-F Institutional Owners

Execucomp Variables:

- *Total Compensation:* The sum of the executive salary, bonus, equity and options grants as of the end of the fiscal year.
- *Cash Compensation:* The sum of the executive salary and bonus compensation.
- *% Equity Compensation:* The ratio of non-cash compensation to total compensation.
- *Delta*: For each executive, it is the dollar change in wealth associated with a 1% change in the firm's stock price, normalized by the firm's market capitalization.

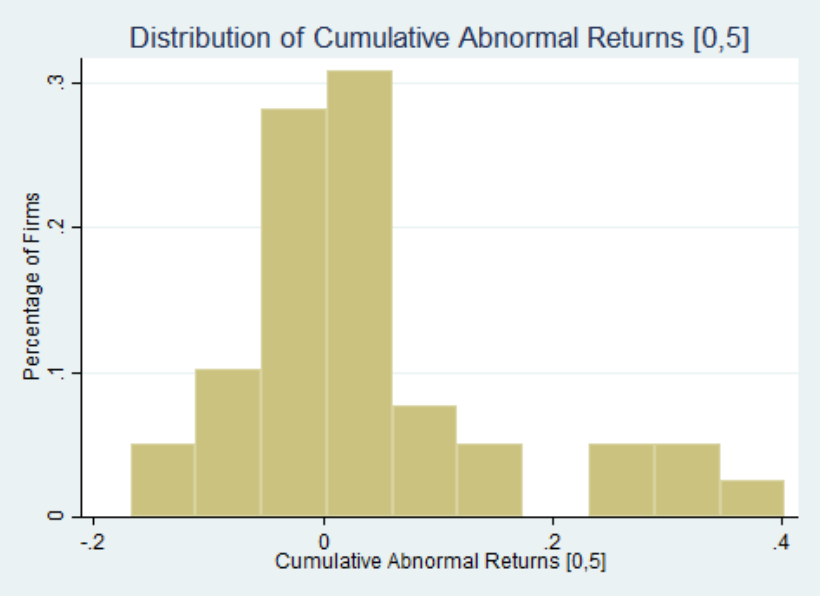
Governance Variables:

- *E-Index:* Bebchuk et al. (2009) index of managerial entrenchment.
- *Board Size:* Number the board of directors in the board.
- *% Independent Directors:* The ratio of independent directors to the total number of directors in the board.
- *CEO Duality*: A binary variable that takes the value of one if the CEO is also the Chairman of the board, and it is zero otherwise.

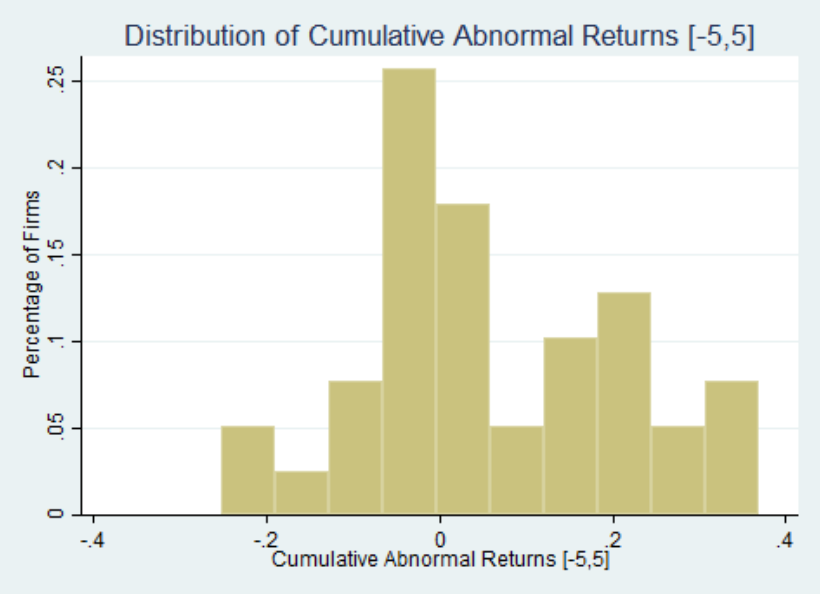
Country specific characteristics

- *ROL:* Rule of law index. The index ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance.
- *Marginal Tax Rate:* Statutory marginal corporate tax rate of the highest tax bracket prevailing in the country of incorporation.
- *Percentile rank:* Ranking of the country of incorporation's rule of law.

Figure 1: **Cumulative Abnormal Returns**



Panel A: Distribution of cumulative abnormal returns on the five-day period after the inversion announcement. Bars in the graph depict the percentage of firms per bin.



Panel B: Distribution of cumulative abnormal returns on the ten-day period centered around the inversion announcement. Bars in the graph depict the percentage of firms per bin.

Table 1: **S&P 500 index membership of inversions**

This table shows the 19 inversions included in the S&P 500 index as of December 31, 2013. Country/State of Incorporation denotes, in chronological order, all the countries and U.S. states in which the company has been incorporated during the 1996-2013 period. Origin represents the type of inversion. Market cap. is the company's stock market capitalization (in millions of U.S. dollars) as of December 31, 2013.

Corporation Name	**Country/State of Incorporation**	**Origin**	**Market Cap.**
Aon Plc.	Delaware, U.K.	Pure Inversion	25,254
Tyco Intl. Ltd.	Massachusetts, Bermuda, Switzerland	Pure Inversion	19,096
Transocean Ltd.	Texas, Cayman Islands, Switzerland	Pure Inversion	17,820
Ingersoll-Rand Plc.	New Jersey, Bermuda, Ireland	Pure Inversion	17,746
Ensco Plc.	Delaware, U.K.	Pure Inversion	17,565
Noble Corp.	Delaware, Cayman Islands, Switzerland, U.K.	Pure Inversion	9,495
Nabors Ind. Ltd.	Delaware, Bermuda	Pure Inversion	5,014
Rowan Companies Plc.	Texas, U.K.	Pure Inversion	4,392
Eaton Corp. Plc.	Ohio, Ireland	Merger Inversion	36,118
Actavis Plc.	Nevada, Ireland	Merger Inversion	29,240
Perrigo Plc.	Michigan, Ireland	Merger Inversion	20,514
Pentair Plc.	Minnesota, Switzerland	Merger Inversion	15,482
Nielsen N.V.	Netherlands	Merger/LBO Inv.	17,359
Seagate Tech. Plc.	Delaware, Cayman Islands, Ireland	LBO Inversion	18,316
Avago Tech. Ltd.	Delaware, Singapore	LBO Inversion	13,172
Delphi Automotive Plc.	Michigan, U.K., Jersey	Bankruptcy Inversion	18,503
Covidien Plc.	Bermuda, Ireland	Spin-off Inversion	30,808
TE Connectivity Ltd.	Bermuda, Switzerland	Spin-off Inversion	22,615
Allegion Plc.	Ireland	Spin-off Inversion	4,242

Table 2: **The number of inversions**

Panel A: The number of inversions and the number of firm-year observations within each group during the 1996-2013 period.

	# Companies	**# Firm-year Observations**
Pure Inversions	21 (31.81%)	208 (47.48%)
Restructuring Inversions	45 (68.18%)	230 (52.51%)
Inversions- Total	66 (100%)	438 (100%)

Panel B: Number of inversions firm-year observations during the 1996-2013 period by country of incorporation. The tax-haven classification follows Dharmapala and Hines (2009).

Country of Incorporation	**Pure Inversions**	**Restructuring Inversions**	**Total-Inversions**
Tax haven countries			
Bermuda	99	74	173
Cayman Islands	43	29	72
Ireland	12	13	25
Marshall Islands	0	0	0
Switzerland	28	8	36
British Virgin Islands	0	7	7
Panama	18	4	22
Netherlands Antilles	0	2	2
Singapore	0	11	11
Luxembourg	0	0	0
Bahamas	0	0	0
Jersey	0	2	2
Liberia	0	0	0
Tax Havens - Subtotal	200	150	350
Non-Tax haven countries			
Canada	0	35	35
Netherlands	2	43	45
Israel	0	0	0
United Kingdom	6	1	7
France	0	0	0
Australia	0	1	1
Curacao	0	0	0
Non-Tax Havens - Subtotal	8	80	88
Total - All countries	208	230	438

Table 3: **Summary Statistics for inversions**

This table presents the descriptive statistics based on the nature of the transaction leading to the *Corporate Inversions*. *Pure inversions* include U.S. companies that reincorporate in a new country, and the existing shareholders own shares in the new foreign parent company with no material change in the company's business and assets. *Restructuring Inversion* include *Merger Inversions, LBO Inversions, Bankruptcy Inversions,* and *Spin-Off Inversions.* U.S. multinationals are the U.S. incorporated firms that report positive foreign sales in the Compustat Segments data. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix.

	Pure Inversions			Restructuring Inversions			U.S. Multinationals (Potential control candidates)		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Matching variables									
Log(Total Assets)	208	8.68	9.209	230	7.544	7.847	17758	5.984	5.802
Market to book	208	1.66	1.289	219	1.858	1.325	17261	2.291	1.7
ROA	208	0.083	0.077	230	0.043	0.065	17758	0.016	0.057
Control variables									
RD/Assets	208	0.005	0	230	0.044	0	17758	0.083	0.05
Rated	208	0.913	1	230	0.217	0	17758	0.727	1
Acquisition	208	0.015	0	230	0.027	0	17758	0.026	0
Return	203	0.174	0.141	190	0.173	0.151	15835	0.168	0.043
Volatility	205	0.026	0.023	217	0.032	0.025	16957	0.039	0.034
Capital Expenditures/Assets	208	0.045	0.02	230	0.048	0.03	17758	0.046	0.029
Outcome variables									
GAAP ETR	204	0.189	0.19	229	0.101	0.147	17592	0.143	0.215
Cash ETR	197	0.143	0.16	209	0.108	0.096	16034	0.153	0.124
Log(Total Compensation)	815	8.123	8.08	276	7.628	7.716	41222	7.326	7.266
Log(Cash Compensation)	815	6.791	6.718	276	6.306	6.262	41180	6.168	6.109
% Equity Based Compensation	815	0.648	0.737	276	0.639	0.751	41223	0.596	0.657
Delta	815	312.917	78.902	276	197.441	69.482	41222	629.934	58.138
E-Index	44	2.295	2	14	1.857	2	4940	2.17	2
Board Size	62	9.177	9	14	10.643	11	6495	8.838	9
% Independent Directors	62	0.725	0.75	14	0.811	0.826	6495	0.714	0.75
CEO Duality	62	0.919	1	14	0.714	1	6495	0.94	1
Spread	202	0.664	0.109	202	1.435	0.156	15925	1.303	0.446
Turnover	202	9.331	7.656	202	8.533	7.133	15929	9.332	6.78
Analyst Dispersion	184	0.296	0.155	178	0.302	0.185	12550	0.158	0.07
Institutional Ownership	121	0.706	0.756	123	0.656	0.743	14266	0.579	0.626
Log (Inst. Own Herfindahl Index)	121	-2.904	-3.057	124	-2.727	-2.938	14278	-2.56	-2.762
Log(Avg. Institutional Ownership)	121	-5.699	-5.619	123	-5.333	-5.283	14266	-5.182	-5.086

Table 4: **Summary comparison of inversions and control sample**

This table presents descriptive statistics that compare treatment firms and control firms. The sample comprises 438 firm-year *Corporate Inversion* observations, and up to twice the number of control firms matched by industry, *Log(Total Assets), Market to Book,* and *ROA* (sample CS1). Both groups of firms are publicly-traded operating firms. The last column reports the scaled difference statistic proposed by Abadie and Imbens (2011).

$$T = \frac{\bar{X}_1 - \bar{X}_0}{\sqrt{S_1^2 + S_0^2}}$$

All variables are scaled by total assets. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix.

	25th Percentile		50th Percentile		75th Percentile		P-values for median comparison	P-values for distribution comparison	Scaled difference
	Inversions	Control	Inversions	Control	Inversions	Control			
Matching variables									
Log(Total Assets)	6.754	6.830	8.434	8.309	9.588	9.112	0.234	0.131	0.037
Market to Book	1.029	1.076	1.317	1.375	2.038	1.869	0.264	0.310	0.078
ROA	0.030	0.032	0.072	0.069	0.113	0.115	0.341	0.937	-0.020
Control variables									
RD/Assets	0.000	0.000	0.000	0.000	0.012	0.019	0.907	0.539	0.004
Rated	0.000	1.000	1.000	1.000	1.000	1.000	.	0.000	-0.505
Acquisition	0.000	0.000	0.000	0.000	0.010	0.013	0.043	0.074	0.008
Return	-0.122	-0.130	0.143	0.113	0.407	0.359	0.153	0.334	0.030
Volatility	0.017	0.017	0.025	0.024	0.035	0.034	0.533	0.676	0.045
Capital Expenditures/Assets	0.004	0.010	0.026	0.027	0.063	0.076	0.552	0.009	-0.122

Table 5: **ATT without bias correction**

This table presents mean comparison between treatment firms and control firms. The sample comprises 438 *Corporate Inversions* firm-year observations, and up to twice the number of control firms matched by industry, *Log(Total Assets), Market to Book,* and *ROA* (sample CS1). Both groups of firms are publicly-traded multinational operating firms. All corporate policy variables are scaled by total assets. All variables are winsorized at the 1st and 99th percentile. All variables are defined in the Appendix.

	Observations	Mean		Difference	p-value of the difference
		Inversion	Control		
	(1)	(2)	(3)	(4)	(5)
GAAP ETR	1,138	0.147	0.213	-0.066**	0.014
Cash ETR	1,138	0.125	0.197	-0.072***	0.001
Log(Total Compensation)	3,859	7.998	7.656	0.342***	0.000
Log(Cash Compensation)	3,859	6.668	6.389	0.280***	0.000
% Equity Based Compensation	3,859	0.646	0.648	-0.003	0.762
Log(Delta/Total Comp)	3,801	-3.739	-3.436	-0.303***	0.000
E-Index	422	2.214	2.432	-0.217	0.266
Board Size	526	9.447	9.698	-0.250	0.363
% Independent Directors	526	0.741	0.751	-0.010	0.620
CEO Duality	526	0.882	0.927	-0.045	0.180
Spread	985	0.414	0.445	-0.031	0.575
Turnover	985	9.755	10.197	-0.442	0.396
Analyst Dispersion	985	0.308	0.250	0.058**	0.019
Institutional Ownership	892	0.681	0.738	-0.057	0.191
Log(HHI Inst. Own.)	892	-2.817	-2.932	0.115**	0.047
Log(Avg. Inst. Ownership)	892	-5.515	-5.615	0.100*	0.080

Table 6: **Effect of inversions on Executive Compensation**

This table reports the results of regressions investigating the impact of *Corporate Inversion* on *Executive Compensation*. The sample in columns (1), (3), (5) and (7) comprises 438 *Corporate Inversions* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total Assets), Market to Book,* and *ROA* (sample *CS1*). The sample in columns (2), (4), (6) and (8) comprises 438 *Corporate Inversions* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total Assets), Market to Book, ROA, Volatility, Stock Return, Bid-Ask Spread, Leverage and R&D expenditures*. In each column, we estimate the regression:

$$Y_{it} = \beta_0 + \beta_1 * Treated_{it} + X_{it-1} \cdot \gamma + \alpha_i + \delta_t + \epsilon_{it}$$

We estimate this regression on all the executive-firm-year treated and control firms in our sample from 1996 to 2013. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix. All columns include fixed effects at year and industry level along with standard errors clustered at industry level. For brevity, we suppress the coefficients on the fixed effects.

	Log(Total Compensation)		Log(Cash Compensation)		% Equity Based Compensation		Log(Delta/Total Comp)	
	CS1	*Augmented control sample*	*CS1*	*Augmented control sample*	*CS1*	*Augmented control sample*	*CS1*	*Augmented control sample*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated $_t$	.046	.097	.151	.166	-.054	-.048	-.299	-.202
	(.068)	(.076)	(.059)**	(.060)***	(.021)**	(.020)**	(.144)**	(.143)
CEO_{t-1}	1.107	1.102	.748	.742	.085	.084	.749	.714
	(.048)***	(.047)***	(.036)***	(.035)***	(.009)***	(.009)***	(.059)***	(.062)***
Log(Total assets)$_{t-1}$	.435	.383	.183	.164	.070	.060	.006	-.048
	(.032)***	(.038)***	(.027)***	(.025)***	(.010)***	(.009)***	(.062)	(.057)
ROA_{t-1}	.092	.056	.568	.514	-.161	-.136	.790	-.517
	(.231)	(.304)	(.237)**	(.254)**	(.094)*	(.088)	(.633)	(.661)
Market to $Book_{t-1}$	.141	.148	-.036	-.012	.051	.051	.052	.051
	(.058)**	(.056)***	(.044)	(.035)	(.016)***	(.015)***	(.096)	(.080)
$Debt/Assets_{t-1}$	-.122	-.050	-.017	-.178	-.045	.009	-.422	-.152
	(.236)	(.218)	(.152)	(.155)	(.073)	(.077)	(.507)	(.468)
$RD/Assets_{t-1}$	.597	1.773	1.234	2.032	-.096	.015	1.101	-.405
	(.707)	(.924)*	(.632)*	(.749)***	(.265)	(.239)	(1.900)	(1.793)
Stock $Return_{t-1}$	.128	.077	.066	.049	.023	.010	.135	.142
	(.035)***	(.041)*	(.030)**	(.033)	(.015)	(.018)	(.071)*	(.104)
$Volatility_{t-1}$	-2.355	-3.391	-.363	-1.029	-.766	-.363	-1.158	-11.127
	(2.296)	(2.869)	(2.315)	(2.369)	(.924)	(.827)	(5.491)	(5.970)*
Bid-Ask $Spread_{t-1}$	-1.057	-1.222	-1.684	-1.663	.024	-.246	-2.819	-2.974
	(.804)	(.905)	(.647)***	(.737)**	(.330)	(.257)	(1.557)*	(1.495)**
Const.	3.227	3.829	4.956	5.101	-.254	-.093	-2.967	-2.491
	(.408)***	(.481)***	(.271)***	(.265)***	(.173)	(.159)	(.602)***	(.595)***
Obs.	3515	3541	3515	3541	3515	3541	3476	3488
R^2	.621	.602	.495	.499	.403	.403	.212	.194

Table 7: **Effect of inversions on Corporate Governance Indicators**

This table reports the results of regressions investigating the impact of *Corporate Inversion* on the *Bebchuk et al. (2009) Corporate Governance Index* and other governance indicators. The samples in column (1), (3), (5), and (7) comprise 438 *Corporate Inversions* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total Assets), Market to Book,* and *ROA* (sample *CS1*). The sample in columns (2), (4), (6), and (8) comprise 438 *Corporate Inversions* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total Assets), Market to Book, ROA, Leverage, Capital expenditures, and R&D expenditures*. In each column, we estimate the regression:

$$Y_{it} = \beta_0 + \beta_1 * Treated_{it} + X_{it-1} \cdot \gamma + \alpha_i + \delta_t + \epsilon_{it}$$

Columns (2) includes as regressors the set of matching covariates and report the bias-corrected average treatment effect on the treated. We estimate this regression on all the firm-year treated and control firms in our sample from 1996 to 2013. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix. All columns include fixed effects at year and industry level along with standard errors clustered at industry level. For brevity, we suppress the coefficients on the fixed effects.

	E-Index		Board Size		% Independent Directors		CEO Duality	
	CS1	*Augmented control sample*	*CS1*	*Augmented control sample*	*CS1*	*Augmented control sample*	*CS1*	*Augmented control sample*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated$_t$	.358	.394	-.881	-1.017	-.025	-.030	-.027	-.024
	(.207)*	(.198)**	(.528)*	(.507)**	(.024)	(.025)	(.048)	(.045)
Log(Total assets)$_{t-1}$	-.050	-.063	.958	.912	.014	.015	.011	-.003
	(.081)	(.079)	(.164)***	(.162)***	(.010)	(.009)	(.018)	(.017)
ROA$_{t-1}$	-1.744	-1.738	.978	.647	-.047	.050	-.038	.029
	(.858)**	(.969)*	(1.464)	(1.707)	(.115)	(.137)	(.214)	(.236)
Market to Book$_t$	.240	.310	-.002	.059	.016	-.019	.004	-.004
	(.109)**	(.127)**	(.175)	(.242)	(.014)	(.019)	(.032)	(.035)
Debt/Assets$_{t-1}$	.174	-1.886	-.734	.305	.046	.136	.171	.242
	(.522)	(.699)***	(.963)	(1.322)	(.063)	(.098)	(.116)	(.160)
R&D/Assets$_{t-1}$	-.618	-5.146	6.861	15.207	.501	1.846	.495	1.264
	(2.066)	(3.655)	(5.434)	(7.543)**	(.306)	(.527)***	(.631)	(1.277)
Capex$_{t-1}$	-.578	1.273	-3.210	-5.439	-.312	-.457	.205	.102
	(1.784)	(1.973)	(2.805)	(3.025)*	(.195)	(.232)**	(.344)	(.351)
Const.	1.551	2.094	4.473	3.299	.705	.532	.865	.969
	(.683)**	(.760)***	(1.332)***	(1.748)*	(.089)***	(.104)***	(.174)***	(.170)***
Obs.	458	447	518	520	518	520	518	520
R^2	.562	.569	.393	.373	.479	.44	.122	.167

Table 8: **Effect of inversions on analyst coverage and stock liquidity**

This table reports the results of regressions investigating the impact of *Corporate Inversion* on analyst coverage and stock liquidity. The sample in columns (1), (3), and (5) comprises 438 *Corporate Inversion* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total Assets), Market to Book,* and *ROA* (sample *CS1*). The sample in columns (2), (4), and (6) comprises 438 *Inversions* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total Assets), Market to Book, ROA* , *Stock Volatility* and a binary indicator that takes the value of 1 if the firm has a credit *Rating* and zero otherwise. In each column, we estimate the regression:

$$Y_{it} = \beta_0 + \beta_1 * Treated_{it} + X_{it} \cdot \gamma + \alpha_i + \delta_t + \epsilon_{it}$$

Columns (2), (4), and (6) include as regressors the set of matching covariates and report the bias-corrected average treatment effect on the treated. We estimate this regression on all the firm-year treated and control firms in our sample from 1996 to 2013. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix. All regressions include year and industry fixed effects and standard errors clustered at the firm level. For brevity, we suppress the coefficients on the fixed effects.

	Spread		Turnover		Analyst dispersion	
	CS1	*Augmented control sample*	*CS1*	*Augmented control sample*	*CS1*	*Augmented control sample*
	(1)	(2)	(3)	(4)	(5)	(6)
Treated$_t$	.004	.492	.192	-1.468	.123	.093
	(.056)	(.217)**	(.647)	(.646)**	(.067)*	(.058)*
Log(Total assets)$_t$	-.079	-.263	1.114	2.030	-.011	-.009
	(.018)***	(.054)***	(.215)***	(.280)***	(.021)	(.021)
Leverage$_t$	.515	-.367	3.602	2.779	.257	.275
	(.271)*	(.593)	(1.940)*	(2.251)	(.151)*	(.133)**
Rated$_t$	-.063	.625	2.878	-.208	.147	.095
	(.070)	(.311)**	(.815)***	(.813)	(.059)**	(.062)
Capital Expenditure$_t$	.115	.361	-9.654	5.420	-.230	.004
	(.397)	(1.417)	(7.505)	(7.712)	(.250)	(.349)
Stock Volatility$_t$	12.418	52.824	198.762	171.471	1.175	1.305
	(3.331)***	(20.247)***	(34.179)***	(32.496)***	(1.483)	(1.507)
Const.	2.170	3.144	-11.892	-14.521	.023	-.023
	(.455)***	(.643)***	(2.793)***	(2.673)***	(.165)	(.147)
Obs.	985	1193	985	1193	1015	1060
R^2	.688	.587	.488	.484	.258	.213

Table 9: **Effect of inversions on institutional ownership**

This table reports the results of regressions investigating the impact of *Corporate Inversion* on institutional ownership and ownership characteristics. The sample in columns (1), (3), and (5) comprises 438 *Corporate Inversions* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total Assets), Market to Book,* and *ROA* (sample *CS1*). The sample in columns (2), (4), and (6) comprises 438 *Corporate Inversions* firm-year observations and up to twice the number of control firm-year observations matched by industry, *Log(Total assets), Volatility, Spread, Market-to-Book, Stock Return, Leverage*, and *Cash*. In each column, we estimate the regression:

$$Y_{it} = \beta_0 + \beta_1 * Treated_{it} + X_{it-1} \cdot \gamma + \alpha_i + \delta_t + \epsilon_{it}$$

Columns (2), (4), and (6) include as regressors the set of matching covariates and report the bias-corrected average treatment effect on the treated. We estimate this regression on all the firm-year treated and control firms in our sample from 1996 to 2013. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix. All columns include fixed effects at year and industry level along with standard errors clustered at industry level. For brevity, we suppress the coefficients on the fixed effects.

	Institutional Ownership		Log(HHI Inst. Own)		Log(Avg. Inst. Ownership)	
	CS1	*Augmented control sample*	*CS1*	*Augmented control sample*	*CS1*	*Augmented control sample*
	(1)	(2)	(3)	(4)	(5)	(6)
Treated$_t$	-.021	-.032	.103	.132	.173	.160
	(.027)	(.027)	(.066)	(.064)**	(.063)***	(.064)**
Log(Total assets)$_t$	.040	.033	-.157	-.144	-.342	-.353
	(.013)***	(.011)***	(.024)***	(.022)***	(.038)***	(.035)***
Volatility$_t$	.075	.184	-.470	-.814	-.559	-.300
	(.102)	(.096)*	(.270)*	(.267)***	(.290)*	(.228)
Stock Return$_t$	.015	.010	-.020	-.014	-.130	-.131
	(.012)	(.011)	(.025)	(.030)	(.035)***	(.030)***
Spread$_t$	-2.031	-.748	3.698	.914	.616	2.251
	(.954)**	(1.047)	(2.360)	(2.403)	(2.396)	(3.170)
Market to Book$_t$	-.002	.004	-.001	.024	.066	.157
	(.014)	(.017)	(.041)	(.048)	(.034)**	(.055)***
Tangibility$_t$	-.056	-.073	.140	.161	-.124	-.174
	(.016)***	(.022)***	(.054)***	(.061)***	(.092)	(.096)*
Debt/Assets$_t$	-.099	-.056	.517	.363	.140	.228
	(.069)	(.078)	(.253)**	(.323)	(.164)	(.221)
Dividend Payer$_t$	.023	.048	.196	.076	.544	.730
	(.067)	(.088)	(.176)	(.240)	(.264)**	(.306)**
Cash flow/Tot. Assets$_t$	-.015	.011	.057	.062	-.012	.068
	(.022)	(.026)	(.082)	(.124)	(.049)	(.061)
Const.	.392	.530	-1.845	-2.352	-2.799	-2.665
	(.122)***	(.126)***	(.328)***	(.296)***	(.394)***	(.365)***
Obs.	695	711	695	711	695	711
R^2	.444	.431	.448	.371	.688	.694

Table 10: **Effect of inversions on the value of corporate cash holdings**

This table reports the results of regressions investigating the impact of *Corporate Inversions* on the marginal value of cash holdings. The sample comprises all the Corporate Inversions and U.S. incorporated firms. Column (1) reports the estimates that include firm and year fixed effects along with standards errors clustered at the firm level. Column (2) reports the estimates that include within-industry year fixed effects and industry clustered standard errors. Column (3) presents the results where the standard errors are clustered simultaneously at the industry and year level while Column (4) reports the estimates from the cross-sectional regression for each year in the data using the Fama-Macbeth procedure. In each column, we estimate the effect of foreign incorporation on the marginal value of cash using a procedure similar to Faulkender and Wang (2006). Similar to Dittmar and Mahrt-Smith (2007), the marginal value for the average firm is the coefficient on the change in cash plus the sample average for all variables that are interacted with the change in cash times the respective regression coefficient from the model. We estimate this regression on all the firm-year observations in our sample from 1996 to 2013. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix. For brevity, we suppress the coefficients on the fixed effects.

	(1)	(2)	(3)	(4)	(5)
$Inverted \times {}^{\Delta Cash}/_{Mkt.Cap}$	-.268	-.623	-.512	-.433	-.484
	(.136)**	(.326)*	(.234)**	(.259)*	(.279)*
${}^{\Delta Cash}/_{Mkt.Cap}$	1.463	1.333	1.328	1.244	1.534
	(.089)***	(.083)***	(.105)***	(.057)***	(.208)***
$Inverted_t$	.221	.008	-.022	-.017	-.036
	(.263)	(.033)	(.049)	(.031)	(.050)
ΔEarnings$_t$	1.118	1.297	1.302	1.403	1.691
	(.140)***	(.093)***	(.152)***	(.150)***	(.246)***
ΔNon Cash Assets$_t$	.225	.283	.229	.280	.310
	(.042)***	(.030)***	(.069)***	(.043)***	(.102)***
ΔInterest$_t$	-1.167	-3.044	-2.875	-3.762	-5.157
	(1.160)	(.801)***	(1.415)**	(1.111)***	(1.597)***
ΔDividends$_t$	3.303	2.957	3.458	3.654	5.748
	(1.064)***	(1.025)***	(1.082)***	(.952)***	(2.353)**
${}^{\text{Cash}}/_{\text{Mkt. Cap}_{t-1}}$	.876	.191	.168	.086	.303
	(.077)***	(.043)***	(.099)*	(.072)	(.132)**
${}^{\text{Cash}}/_{\text{Mkt. Cap}_{t-1}} \times {}^{\Delta\text{Cash}}/_{\text{Mkt. Cap}_{t-1}}$	-.814	-.982	-1.045	-1.312	-1.013
	(.226)***	(.188)***	(.223)***	(.191)***	(.415)**
Leverage$_t$	-.289	-.122	-.086	-.107	-.047
	(.107)***	(.037)***	(.046)*	(.045)**	(.073)
Leverage $\times\Delta$Cash /Mkt. Cap$_t$	-1.062	-1.299	-1.195	-1.160	-1.230
	(.501)**	(.346)***	(.362)***	(.240)***	(.963)
Const.	-.215	-.080	-.055	-.074	.063
	(.032)***	(.011)***	(.021)***	(.022)***	(.030)**
Obs.	7795	7795	7796	7691	7795
R^2	.418	.289	.205	.192	.609
Value of cash for U.S. firms	$1.30	$1.13	$1.14	$1.06	$1.34
Value of cash for Inversions	$1.03	$0.51	$0.64	$0.63	$0.86

Table 11: **Effect of the rule of law in the country of incorporation on the value of corporate cash holdings**

This table reports the results of regressions investigating the effect of the quality of rule of law in a country on the marginal value of cash holdings. The sample comprises all the *Corporate Inversions* and U.S. incorporated firms. Column (1) reports the estimates that include firm and year fixed effects along with standards errors clustered at the firm level. Column (2) reports the estimates that include within-industry year fixed effects and industry clustered standard errors. Column (3) presents the results where the standard errors are clustered simultaneously at the industry and year level while Column (4) reports the estimates from the cross-sectional regression for each year in the data using the Fama-Macbeth procedure. In each column, we estimate the effect of rule of law of the parent's country of incorporation on the marginal value of cash using a procedure similar to Faulkender and Wang (2006). We estimate this regression on all the firm-year observations in our sample from 1996 to 2013. All variables are defined in Appendix. For brevity, we suppress the coefficients on the fixed effects.

	(1)	(2)	(3)	(4)	(5)
[100-Percentile rank ROL] $\times$ $^{\Delta Cash}/_{Mkt.Cap}$	-.009	-.011	-.008	-.006	-.019
	(.004)**	(.003)***	(.002)***	(.013)	(.007)**
$^{\Delta Cash}/_{Mkt.Cap}$	1.574	1.459	1.425	.861	1.752
	(.112)***	(.096)***	(.115)***	(.219)***	(.262)***
[100-Percentile rank ROL]$_t$	-.001	-.001	-.002	-.002	-.002
	(.0007)*	(.0005)**	(.0004)***	(.0004)***	(.0009)*
ΔEarnings$_t$	1.120	1.295	1.304	1.412	1.702
	(.105)***	(.092)***	(.152)***	(.153)***	(.219)***
ΔNon Cash Assets$_t$	.225	.285	.230	.278	.310
	(.035)***	(.030)***	(.070)***	(.043)***	(.066)***
ΔInterest$_t$	-1.208	-3.141	-2.961	-3.750	-5.341
	(1.060)	(.805)***	(1.409)**	(1.120)***	(1.704)***
ΔDividends$_t$	3.269	2.989	3.480	3.576	5.828
	(1.202)***	(1.021)***	(1.123)***	(.946)***	(2.223)***
(Cash/Mkt.Cap)$_{t-1}$	.875	.191	.170	.090	.301
	(.074)***	(.042)***	(.098)*	(.072)	(.094)***
(Cash/Mkt.Cap)$_{t-1}$ $\times\Delta$Cash /Mkt. Cap	-.839	-1.011	-1.068	-1.296	-1.071
	(.228)***	(.186)***	(.207)***	(.192)***	(.400)***
Leverage$_t$	-.287	-.123	-.087	-.109	-.046
	(.088)***	(.037)***	(.046)*	(.044)**	(.061)
Leverage $\times\Delta$Cash /Mkt. Cap	-1.075	-1.315	-1.213	-1.173	-1.238
	(.408)***	(.340)***	(.355)***	(.237)***	(.652)*
Const.	-.054	-.002	.126	.081	.192
	(.077)	(.041)	(.046)***	(.041)**	(.073)***
Obs.	7790	7789	7790	7685	7790
R^2	.419	.291	.207	.173	.612

Table 12: **Summary comparison of inversions and control sample - difference-in-differences sample**

This table presents descriptive statistics that compare treatment firms and control firms. The sample includes the inverted companies for which we have non-missing information in the year before and after the inversion, and a sample of control firms identified by matching to a U.S. incorporated multinational firm on industry, year, *Log(Total Assets), Market to Book,* and *ROA* in the year before the inversion. The last column reports the scaled difference statistic proposed by Abadie and Imbens (2011).

$$T = \frac{\bar{X}_1 - \bar{X}_0}{\sqrt{S_1^2 + S_0^2}}$$

All variables are scaled by total assets. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix.

	25th Percentile		50th Percentile		75th Percentile		P-values for median comparison	P-values for distribution comparison	Scaled difference
	Inversions	Control	Inversions	Control	Inversions	Control			
Matching variables									
Log(Total Assets)	6.582	6.608	8.091	7.822	8.451	8.522	0.556	0.817	0.025
Market to Book	1.114	1.061	1.391	1.403	2.948	1.880	0.844	0.321	0.256
ROA	0.020	0.029	0.082	0.067	0.130	0.103	0.638	0.675	0.034
Control variables									
RD/Assets	0.000	0.000	0.000	0.000	0.017	0.030	0.502	0.344	-0.058
Rated	0.000	0.000	1.000	1.000	1.000	1.000	.	0.875	0.022
Return	-0.267	-0.372	-0.038	-0.052	0.517	0.241	1.000	0.441	0.138
Volatility	0.020	0.019	0.032	0.029	0.041	0.041	0.425	0.973	-0.060
Capital Expenditures/Assets	0.003	0.012	0.020	0.040	0.077	0.108	0.031	0.037	-0.280

Table 13: **Difference-in-Differences**

This table reports the results of difference-in-differences estimation. The sample includes the inverted companies for which we have non-missing information in the year before and after the inversion, and a sample of control firms identified by matching to a U.S. incorporated multinational firm on industry, year, *Log(Total Assets), Market to Book,* and *ROA* in the year before the inversion. All variables are defined in Appendix.

	Log(Total Compensation)	Log(Cash Compensation)	% Equity Compensation	Log(Delta / Total Comp)	E-Index	Board Size	% Independent Directors	CEO Duality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Pre for Treated Firms	-0.023	0.123	-0.051	0.307	1.154	-1.583	0.025	-0.129
	(0.135)	(0.080)	(0.042)	(0.246)	(0.475)**	(1.269)	(0.088)	(0.279)
Post-Pre for Control Firms	0.080	0.088	0.010	0.194	-0.198	-1.805	-0.121	-0.047
	(0.104)	(0.065)	(0.036)	(0.165)	(0.314)	(1.233)	(0.074)	(0.344)
Diff. in Differences	-0.104	0.036	-0.067	0.113	1.353	0.221	0.146	-0.082
	(0.124)	(0.073)	(0.031)**	(0.200)	(0.444)***	(0.683)	(0.091)	(0.281)
Obs.	1397	1397	1397	1397	101	41	41	41
R^2	0.481	0.542	0.251	0.271	0.670	0.773	0.906	0.521

Table 13: **Difference-in-Differences (...continued)**

This table reports the results of difference-in-differences estimation. The sample includes the inverted companies for which we have non-missing information in the year before and after the inversion, and a sample of control firms identified by matching to a U.S. incorporated multinational firm on industry, year, *Log(Total Assets), Market to Book,* and *ROA* in the year before the inversion. All variables are defined in Appendix.

	Spread	Turnover	Analysts Dispersion	Inst. Ownership	Log(HHI Inst. Own.)	Log(Avg. Inst. Own)
	(9)	(10)	(11)	(12)	(13)	(14)
Post-Pre for Treated Firms	0.190	-0.033	0.022	-0.192	0.725	-0.023
	(0.162)	(1.336)	(0.109)	$(0.085)^{**}$	(0.531)	(0.247)
Post-Pre for Control Firms	-0.143	-0.223	0.040	0.037	0.068	0.112
	(0.125)	(1.530)	(0.081)	(0.032)	(0.203)	(0.112)
Diff. in Differences	0.334	0.190	-0.018	-0.229	0.657	-0.136
	$(0.182)^{*}$	(1.670)	(0.071)	$(0.085)^{***}$	(0.456)	(0.204)
Obs.	257	257	70	160	160	160
R^2	0.717	0.528	0.766	0.638	0.319	0.770

Table 14: **Cumulative Abnormal Returns and Country of Incorporation Characteristics**

This table reports the results of regressions investigating the impact of the new country of incorporation rule of law and the marginal tax rate on the market reaction to the inversion announcement. We estimate the following univariate regression:

$$CAR_i = \beta_0 + \beta_1 * Country\ Characteristic_{j(i)} \tag{2}$$

where CAR_i is the cumulative abnormal return after the announcement by firm i of the inversion to country *j(i)* (using a five-day window following the announcement and a ten-day window centered around the announcement); $Country\ Characteristic_{j(i)}$ is either country's j rule of law index or its marginal tax rate. All variables are winsorized at the 1st and 99th percentile. All variables are defined in Appendix.

	CAR [0,5]			CAR [-5,5]		
	(1)	(2)	(3)	(4)	(5)	(6)
Marginal tax rate$_j$	.156		.223	.028		.102
	(.228)		(.212)	(.279)		(.266)
[100-Percentile rank ROL]$_j$		-.012	-.016		-.013	-.018
		(.006)**	(.007)**		(.007)*	(.008)**
Const.	.031	.640	.831	.054	.703	.927
	(.040)	(.297)**	(.328)**	(.049)	(.362)*	(.411)**
Obs.	26	29	25	26	29	25
R^2	.019	.132	.231	.0004	.109	.174

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