

Shareholder Beware? Examining NOL Poison Pill Adoptions

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DEDICATION

I dedicate this dissertation to my husband, Calvin Walters. Without your love and support this would not have been possible. Thank you.

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ABSTRACT

This study examines whether or not a specific and unilateral action taken by the board of directors, the adoption of a net operating loss (NOL) poison pill, promotes shareholder interests, by examining the factors that are influential in the adoption decision. NOL poison pill adoptions are unique in that the board of directors cites the need to protect a firm's ability to use its NOL carryforwards in the future, rather than to protect the firm from a specific takeover threat. To address my research question, I examine the firm characteristics associated with NOL poison pill adoptions and find that the relative size and the expectation of future changes in the NOL carryforward are influential in the adoption decision. Further, I find that firms are less likely to adopt an NOL poison pill when corporate governance is weaker. In additional analysis, I also find that NOL poison pill adoption characteristics are different from that of traditional poison pill adoptions and NOL poison pill adoptions are positively associated with future earnings. Overall, results suggest that the adoption of an NOL poison pill by the board of directors promotes shareholder interests and that shareholder concerns could be misplaced.

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SECTION I: INTRODUCTION

The interests of shareholders and firm management are often misaligned, and the board of directors, tasked with overseeing firm management on behalf of shareholders, holds a pivotal role in protecting and promoting shareholder interests. Consequently, it is important to understand whether board actions align with shareholder or management interests. If the board takes actions that promote management interests over shareholder interests, this is in direct opposition of the board's primary objective and could be harmful to shareholder's long-term wealth. One such action taken by the board of directors that is heavily scrutinized is the adoption of a shareholder rights plan (i.e., a poison pill). In this study, I examine the determinants of boards' decisions to adopt net operating loss (NOL) poison pills, a specific subset of poison pills. I exploit the specific, stated purpose of NOL poison pill adoptions to examine whether the characteristics of the decision to adopt an NOL poison pill appear to align with the stated purpose or not.

There is on-going debate about whether poison pills protect shareholders' long-term firm value by providing firms with increased bargaining opportunities in takeover negotiations or whether they increase agency conflict by increasing managerial entrenchment. Poison pills have the potential to increase managerial power and entrenchment by limiting outsiders' ability to takeover or acquire a material stake in a firm (Gottfried and Donahue, 2018). When an entity or individual acquires a specified percentage of ownership in the firm, they trigger a poison pill. Once triggered, the poison pill acts as a deterrent to hostile takeovers and substantial ownership changes by providing shareholders of record the right to purchase stock at a substantial discount, typically 50 percent, diluting firm value and making it harder and more costly for an acquirer to

takeover or acquire a material stake in a firm. Prior literature finds that shareholders react negatively to news of poison pill adoptions suggesting they are skeptical. However, some evidence suggests that firms with poison pills have increased takeover premiums (Comment and Schwert, 1995; Heron and Lie, 2006).

Over time, poison pills have evolved in response to legal requirements and pressure from shareholders and watchdog groups. One such evolution is the creation of the NOL poison pill, a specific-purpose pill. Unlike traditional poison pills, which typically have a trigger limit of 10 to 20 percent (Gottfried and Donahue, 2018), NOL poison pills have a much lower trigger limit, typically between 4.9 percent and 5 percent. In addition, NOL poison pills have, on average, a longer effective date (3 years) than traditional poison pills (1 year). When boards adopt an NOL poison pill, they justify the decision by citing the need to avoid triggering Internal Revenue Code (IRC) Section 382, which could limit a firm's ability to use its NOL carryforwards in the future thus reducing their value.^{1,2} Lost, or limited, tax benefits can be substantial to a firm. For example, Gannett Co., Inc. adopted an NOL poison pill in 2020, stating they were protecting \$435 million in NOL carryforwards (Bomey, 2020). While poison pill adoptions in general are rare, the NOL poison pill occurs much less frequently than the traditional poison pill. In fact, I identify only 100 NOL poison pill adoptions compared to 276 traditional poison pill adoptions during my sample period, approximately one NOL poison pill adoption for every three traditional poison pill adoptions. The scarcity of the NOL poison pill provides limited

¹ IRC Section 382 was adopted to limit loss trafficking, where profitable firms purchase loss firms with NOL carryforwards to reduce their future tax liabilities.

² The basic IRC Section 382 limitation is the product of the market value of the firm immediately prior to the ownership change that triggered IRC Section 382 and the current federal long-term tax-exempt interest rate. Other adjustments to the limitation exist and are discussed in more depth in Section II.

opportunities for investors to understand the pitfalls and implications of these adoptions. My research expands the knowledge of characteristics and future outcomes associated with firms' NOL poison pill adoptions and should be of importance to investors' and other stakeholders' understanding of NOL poison pill adoptions.

NOL poison pills are unique because a firm's board of directors cites reasons other than anti-takeover concerns in their adoption decision (i.e., to protect a firm's ability to use its NOL carryforwards) and they have the potential to provide more protection against takeovers or material changes in firm ownership because of the lower trigger limit and longer lifespan. Consequently, firms could adopt NOL poison pills as a more protective anti-takeover/anti-influence measure and use the potential consequences of an IRC Section 382 limitation as a convenient justification for the decision.

Despite the stated purpose of preserving NOL carryforwards, evidence suggests that proxy advisors, practitioners, and investors are generally skeptical of NOL poison pills. Specifically, both practitioners and proxy advisors are skeptical of the *intent* of the adoption of NOL poison pills, and suggest that the adoption of an NOL poison pill could be a compelling option to deter hostile takeover attempts and/or activist investor campaigns (Gottfried and Donahue, 2018). Further, in its most recently issued United States Proxy Voting Guidelines, Institutional Shareholder Services, Inc. recommends that shareholders vote against all incumbent director nominations if a poison pill exists at the firm that has not been approved by shareholders and further recommends that investors consider the value of NOLs and the existing governance structure for NOL poison pills in voting decisions (Institutional Shareholder Services, Inc., 2020). In addition, Sikes, Tian, and Wilson (2014) and Schepker, Oh, and Patel (2018) find that

investors respond negatively to the adoption of NOL poison pills. While it is clear that there is substantial skepticism surrounding the adoption of NOL poison pills, whether firms adopt NOL poison pills primarily for their stated purpose (i.e., to protect their NOL carryforwards) or not remains an empirical question that I begin to address in my study by identifying the firm characteristics that are associated with the likelihood of adoption.

To address my research question, I search all 8-K filings over the period 2010 – 2019 and create a hand-collected sample of 100 NOL poison pill adoptions. I then examine how NOL carryforward characteristics, corporate governance characteristics, and firm characteristics are associated with the likelihood of adoption. I find that the size of the NOL carryforward, relative to total assets is positively associated with the likelihood of NOL poison pill adoption. Using the change in the NOL carryforward balance from year t to $t+1$ as a perfect foresight proxy for management's expectation of the future change in the NOL carryforward, I also document a negative association between the adoption and the expectation of the future change in NOL carryforward balances. Both of these findings, which are consistent with NOL poison pills' stated purpose to preserve shareholder value, suggest that firms are more likely to adopt NOL poison pills when the NOL carryforward balance is larger and when firms expect to use the NOL carryforward in the near term. I also find some evidence that tax characteristics, including the ability to carryback an NOL and the estimated IRC Section 382 limitation, influence the adoption decision. In addition, I find no difference in the impact of NOL carryforward characteristics on the adoption decision for firms with stronger corporate governance, suggesting that NOL poison pill adoptions align with shareholder interests, on average. I also find differences in the impact of institutional ownership type on the adoption decision. Specifically,

dedicated institutional investors, who use a relationship-style investing approach increase the likelihood of adopting whereas quasi-indexer institutional investors decrease the likelihood of adopting. This suggests that sophisticated investors with stronger relationships with the board approve of the decision to adopt an NOL poison pill. Overall, the results suggest that the adoption of NOL poison pills appear to be primarily for the stated purpose.

I also conduct a comparison analysis between NOL poison pill and traditional poison pill adoptions to verify that my model does indeed capture NOL poison pill adoptions and not simply traditional poison pill adoptions, as an NOL poison pill is a specific subset of a traditional poison pill. I find that NOL carryforward and tax characteristics have no impact on traditional poison pill adoptions, unlike NOL poison pill adoptions. I further find a number of other differences in the impact of poison pill determinants among the two adoption types. This provides comfort that my model is an appropriate estimate for NOL poison pills and also highlights the fact that the decision-making criteria for NOL and traditional poison pills is dissimilar.

I next examine whether the adoption of NOL poison pills is associated with future earnings to corroborate my initial findings. If the board of directors adopts an NOL poison pill for its stated purpose of protecting the ability to use NOL carryforwards in the future, then I posit the adoption should be associated with future earnings as my initial analysis suggests that boards are more likely to adopt NOL poison pills when they expect to be able to use the NOL carryforward in the future. Therefore, I further examine the association between NOL poison pill adoption and future earnings. Prior literature suggests that management's private information about a firm's future performance could be reflected in tax information (Dhaliwal, Kaplan, Laux, and Weisbrod, 2013; Edwards, 2018). Similarly, the adoption of an NOL poison pill could reflect

private information regarding future profitability. I find a positive and significant association between NOL poison pill adoptions and future earnings. This suggests that NOL poison pill adoptions occur in periods before increased earnings, when NOL carryforwards are more likely to be used in the near term, consistent with my main analysis. I also examine the evolution of pretax earnings surrounding the NOL poison pill adoption year and find that periods subsequent to the adoption have a significant increase in pretax earnings and that this continues for at least the next three years following the adoption. Finally, I also examine whether the determinants of NOL poison pill adoption vary based on whether future pretax earnings are in an income or loss position. I find no significant differences, suggesting that the decision-making criteria for adopting an NOL poison pill captured in my models does not hinge on future income or loss. Together, these results provide strong evidence that NOL poison pill adoptions signal management and the board's expectations of increases in future earnings, which is relevant and important information to stakeholders.

My study contributes to several streams of literature. First, I contribute to literature on specific-purpose poison pills (Schepker et al., 2018; Sikes et al., 2014). Schepker et al. (2018) highlight that firms are more likely to adopt poison pills for specific purposes in recent years, making my findings timely and relevant to this trend. My setting provides insights into the adoption decision and consequences of the specific-purpose NOL poison pill. Second, I contribute to the poison pill literature by highlighting differences and similarities in NOL and traditional poison pill adoption characteristics. Third, I contribute to the corporate governance literature focusing on the role and impact of the board of directors at a firm. I find that, on average, the actions taken by boards in this setting appear to be in the best interest of

shareholders. Fourth, I contribute to the rich literature concerning unintended consequences of tax policy (e.g., Blouin and Krull, 2009; Faulkender and Petersen, 2012; Harris and Livingstone, 2002; Oates and Schwab, 2015; Rose and Wolfram, 2002; Scholes, Wilson, and Wolfson, 1992) by examining NOL poison pill adoptions, an unintended consequence of IRC Section 382. Finally, I also contribute to the literature examining the information content of tax assets, which has historically focused on the information content of the valuation allowance by providing evidence of increased future earnings following an NOL poison pill adoption (Dhaliwal et al., 2013; Edwards, 2018).

SECTION II: BACKGROUND AND EXPECTATIONS DEVELOPMENT

Background on NOL poison pills and poison pill literature

Poison pills are anti-takeover provisions. However, poison pills could also be considered anti-influence provisions by deterring shareholders from acquiring an influential stake in a firm (Hurt, 2016). When an investor acquires enough stock in a firm to trigger the poison pill, it takes effect. When an acquiror triggers a poison pill, the firm awards the right to purchase stock in the firm at a discounted price, typically 50 percent below fair market value to those shareholders of record prior to the trigger event. This dilutes the value of the firm by driving the stock price lower and dilutes the acquirer's ownership percentage, making it more costly for the acquirer. In 2019, more than a decade after the last triggered poison pill, Sinovac Biotech Ltd., activated its traditional poison pill in an effort to protect itself from large-stake shareholders of the firm. The pill effectively issued 28 million new shares, diluting the company's voting stock by an estimated 25 percent (Baker, L., 2019). Because it is unclear, ex ante, whether poison pill adoptions are primarily to protect firm value or to further entrench management they are controversial and stakeholders including shareholders, investors, and proxy advisors are often skeptical of these adoptions.

An NOL poison pill also exhibits the characteristics of a traditional poison pill. However, NOL poison pills are unique because they have a much lower trigger limit, typically 4.9 to 5.0 percent, compared to traditional poison pills. In addition, they are active for longer periods (3 years) than traditional poison pills (1 year), on average. Boards rationalize this low trigger limit by citing the consequences of triggering IRC Section 382, which limits a firm's ability to use its

tax attribute carryforwards (e.g., net operating losses).³ When an NOL poison pill is adopted, a firm's board of directors often cites the need to protect the firm's ability to use its NOL carryforward asset without future limitation.⁴ For example, in May 2019, Maxar Technologies Inc. adopted an NOL poison pill citing the intention to "help preserve the value of certain deferred tax benefits, including those generated by net operating losses and certain other tax attributes (collectively, the "Tax Benefits")." In its 8-K filing, the company clarifies further that the tax plan would reduce the likelihood of a change in the investor base that would limit the use of the company's tax benefits (Maxar Technologies Inc., 2019). Other companies use similar language in their adoption of NOL poison pills. Limiting a firm's NOL carryforward reduces its ability to lower future taxable income, thus reducing future free cash flows. Because of its cash flow implications, NOL carryforward balances can be a substantial asset to a firm. For example, in 2019, the mean(median) NOL carryforward in my sample was \$337 (\$37.2) million, with a maximum value of \$4.8 billion. Given these amounts, the average firm in my sample would be able to reduce its future tax liability by approximately \$71 million.⁵

Research into poison pills is broad while research on the specific-purpose NOL poison pill is much more limited. The central concern surrounding poison pill adoptions is whether they

³ In 2010, a landmark court case *Selectica, Inc. v. Verstata Enterprises, Inc., and Trilogy, Inc.*, held in favor of the defendant, Selectica, and cited the potential consequences of triggering IRC Section 382 as sufficient reason to establish an NOL poison pill. Selectica's NOL poison pill was triggered in 2008, reducing the acquirer, Trilogy, Inc's, stake in the company from 6.7% to 3.3% (Erickson and Heitzman, 2010). Among the factors in the court's ruling, the court cited the low trigger threshold for the NOL poison pill as reasonable because it "...was driven by our tax laws and regulations: the threshold, low as it is, was measured by reference to an external standard, one created neither by the Board nor by the Court." (Delaware Court of Chancery, 2010).

⁴ The board may cite other tax attributes in addition to net operating losses, however an examination of other tax attributes, such as the Section 163(j) interest expense limitation, is beyond the scope of this study. Net operating loss carryforwards are the most frequently cited tax benefit that boards assert they need to protect.

⁵ Computed as: \$337 million* 0.21, where 21% is the marginal tax rate for corporations in the United States in 2019. Note that this estimate does not take into account the impact of earnings subject to other tax jurisdictions, such as states and foreign countries.

have an impact on stakeholder wealth. Extant literature examines the shareholder wealth effects of poison pill adoptions, including stock price reactions, takeover premiums, and takeover deterrence. Malatesta and Walkling (1988), Ryngaert (1988), Comment and Schwert (1995), Sikes, Tian, and Wilson (2014), and Schepker, Oh, and Patel (2018) all find negative stock price reactions around poison pill adoption events. However, several studies also find that there is cross-sectional variation in stock price reactions. For instance, Sundrarmurthy (1997) finds that the negative stock market reaction increases when there is more outside representation and when the CEO holds a dual position as chairperson of the board of directors. In contrast, Brickley et al. (1994) finds that the market reaction is more positive when the percentage of outside directors increases. Sikes et al. (2014) also examine cross-sectional variation in stock market reactions between traditional and specific-purpose NOL poison pills and find that the reaction for NOL poison pills is more negative, relative to traditional poison pills, when firms had prior year federal taxes and a staggered board of directors and less negative when firms had positive federal taxes in the future. Finally, Datta and Iskandar-Datta (1996) examine the wealth effects of poison pill adoptions for both stock and bondholders and find that there is a significantly greater wealth loss for bondholders than stockholders. They conjecture this is because of typical increases in leverage following takeover attempts. Thus, the body of research around reactions to poison pill adoptions suggests that stakeholders react negatively to them, on average, but that they also respond predictably to situational circumstances. My study complements this line of research, in particular Sikes et al. (2014), by examining the characteristics associated with NOL poison pill adoptions and whether the adoptions are associated with a firm's future earnings.

Poison pills could also impact stakeholder wealth through their impact on future takeover premiums and likelihood of a takeover attempt at a firm. Proponents of poison pills argue that poison pills actually provide the board more power in takeover negotiations because the cost of triggering a poison pill can be substantial for an acquiror. Several studies examine the impact that poison pills have on future takeovers and associated premiums. Comment and Schwert (1995) find that poison pill adoptions have no impact on the likelihood of a takeover occurring and that those firms with poison pills exhibit higher takeover premiums. Heron and Lie (2006) find similar results and also find that the increase in takeover premiums exists regardless of the timing of poison pill adoption (i.e., before a takeover attempt or immediately following a takeover attempt announcement). Finally, Field and Karpoff (2002) examine the impact of takeover defenses, including poison pills, on takeover likelihood and premiums on a sample of firms that went public from 1988 – 1992 and find that takeover defenses deter subsequent acquisitions, but have no impact on premiums. Therefore, extant literature provides conflicting evidence of takeover defenses' impact on takeover likelihood and premiums, though differences in settings, specifically firm maturity and individual takeover defenses could explain the discrepancy. Together, the body of literature surrounding the wealth impact of poison pill adoptions suggests that investors are, on average, skeptical of the intention behind the adoption, despite the real world impacts of increased takeover premiums. This could perhaps be due to evidence suggesting that poison pill adoptions do not impact takeover likelihood (Comment and Schwert, 1995; Heron and Lie, 2006). If the positive effects of poison pill adoptions are contingent upon a successful takeover attempt, then it can be difficult for stakeholders to assess the potential costs and benefits. Increases in takeover premiums identified in prior literature

support proponents' view of positive shareholder wealth effects, however that line of research is only able to examine successful takeovers, providing only ex-post evidence. My study contributes to this stream of literature by using the specific-purpose nature of NOL poison pills to disentangle whether boards adopt NOL poison pills in order to protect the firm's NOL carryforward (i.e., to protect shareholder wealth) or not, without relying on ex-post events.

There is limited literature on the determinants of poison pill adoptions. To the best of my knowledge, Davis (1991) is the only paper to focus its analysis on the factors that impact poison pill adoptions while Comment and Schwert (1995), Schepker, Oh, and Patel (2018), and Heron and Lie (2006) estimate poison pill adoption likelihood in secondary analyses. Field and Karpoff (2002) estimate defense takeover likelihood more broadly, including poison pills. Finally, Schepker and Oh (2013) estimate the likelihood of repealing a poison pill. Together, extant literature suggests that firm size, debt, firm performance, market value, and board and governance characteristics are influential in poison pill adoptions. I discuss this further in my expectations development section. My study contributes to this line of literature by identifying the characteristics that are influential in the adoption of a specific-purpose poison pill and identifying whether the characteristics of NOL poison pill adoptions differ from that of prior literature.

Background of IRC Section 382

IRC Section 382 is a tax provision enacted to prevent corporations from loss trafficking, where a corporation acquires a loss corporation to use the acquired NOL carryforward to reduce its taxable income. Because NOL carryforwards can reduce taxable income, they are valuable assets due to their cash flow implications. Designed as a loss trafficking deterrent, IRC Section

382 limits a corporation's ability to use its carryforwards, reducing the inherent value. Firms trigger IRC Section 382 when a greater than 50 percentage-point ownership change for common shareholders that own at least 5% or more occurs and can be due to either an owner shift or an equity structure shift.⁶

When a Section 382 limitation applies, the basic limitation is the market value of the firm just prior to the ownership change multiplied by the federal long-term tax-exempt rate in the month of the ownership change. The firm is subject to this limitation on a yearly basis until the NOLs of the old loss corporation are exhausted. While the basic limitation for Section 382 is straight-forward, several nuances impact the occurrence and the amount of the limitation. First, firms must monitor whether an ownership change occurs over a period of time, typically 3 years, making record keeping and monitoring efforts costly. Second, complex ownership classification rules exist that aggregate less than 5% shareholders together as a single entity and also groups shareholders with an indirect interest (e.g., owning stock in a parent corporation or another entity with an interest in the firm) together. Third, firms must also monitor whether they have any net unrealized built-in gains or losses. Net unrealized built-in gains recognized within 5 years following the ownership change increase the limitation, while unrealized losses are subject to the limitation.⁷ Together, these nuances increase the complexity of firms monitoring requirements and complicate whether an ownership change occurs.

⁶ An owner shift would occur when there is any change in the ownership of 5% common stock shareholders. Equity structure shifts occur when the firm undergoes a tax-free reorganization, excluding Type F, Type D, and Type G restructurings (26 U.S. Code § 382 (g)(3)(a)). There is no distinction in the treatment between the two types of ownership changes.

⁷ Governed by 26 U.S. Code § 382(h).

Little empirical research exists examining IRC Section 382. Erickson, Ton, and Wang (2019) find that acquisition premiums and acquirer's abnormal returns are lower for those firms with NOLs with potential Section 382 limitations. By examining whether the adoption of NOL poison pills are closely linked with NOL carryforward characteristics of a firm, I provide evidence on whether the consequences of IRC Section 382 influence NOL poison pills adoptions or whether they are a convenient justification.

IRC Section 382 may extend the amount of time necessary to fully use NOL carryforwards. Prior to the Tax Cuts and Jobs Act of 2017 (TCJA), this extension of time to fully use NOL carryforwards was problematic because NOL carryforwards expired after 20 years. Thus, if a substantial IRC Section 382 limitation occurred it could prevent firms from fully using their carryforwards. After TCJA, firms are able to carryforward their NOLs indefinitely, but face other limitations on their usage.⁸ Because of its complexity and the potential material impact of its limitation, IRC Section 382 has the potential to create material issues for a firm's future value.

Expectations Development – Likelihood of Adoption

My research question focuses on examining what firm characteristics are associated with the likelihood of NOL poison pill adoption. It is important to understand the characteristics that impact NOL poison pill adoptions because it is unclear, ex ante, whether boards adopt them for their stated purpose, to protect their ability to use their future tax benefits, or for other reasons, such as limiting the likelihood of a takeover or an increase in shareholder influence or increasing managerial power. To address this, I examine whether NOL carryforward characteristics,

⁸ Specifically, following the passage of TCJA, firms are only able to use their NOLs to reduce taxable income by 80%. Additional changes to NOL carryforward usage have occurred with the CARES Act of 2020, but they are outside the scope of this study.

corporate governance characteristics, and other characteristics found to be associated with the likelihood of poison pill adoptions and/or takeovers are associated with NOL poison pill adoptions.

To capture a firm's NOL carryforward characteristics, I examine both the size of the NOL carryforward and the expectation of the future change in the NOL carryforward. If firms adopt NOL poison pills for their stated purpose, I expect a positive association between the NOL carryforward balance and the likelihood of adoption. Expectations of the future change in the NOL carryforward could also impact the decision to adopt. Firms can experience increases in the future NOL carryforward by incurring more losses in the future or acquiring NOL carryforwards.⁹ It is not clear, *ex ante*, what the association between increases in the NOL carryforward and NOL poison pill adoptions will be. On the one hand, if firms expect to incur additional losses in the future, then protecting the NOL carryforwards might be irrelevant, as the firm will be unable to use the NOL carryforward until it is profitable. On the other hand, firms might pre-emptively elect to protect future accumulations of the NOL carryforward balance. Firms could also experience decreases in the future balance when they use or write off expired NOL carryforwards.¹⁰ If firms adopt NOL poison pills to protect their ability to use NOL carryforwards in the near-term, then I expect a negative association between the expectation of the future change in NOL carryforwards and adoptions. Conversely, if firms adopt NOL poison

⁹Increases in NOL carryforwards (or other tax assets) due to the acquisition of a target firm are not automatically subject to Section 382 (see footnote 3). IRC Section 269 governs the eligibility of a firm to use acquired NOL carryforwards. In general, IRC Section 269 enables the IRS to disallow the use of NOL carryforwards from acquired companies if the IRS deems the principal purpose of the acquisition to be for the avoidance of income tax. Further discussion of the complexities of IRC Section 269 are outside the scope of this paper.

¹⁰ Prior to the Tax Cuts and Jobs Act of 2017, Federal NOL carryforwards were subject to a 20 year carryover limit. The carryforward was lost if it was not used completely by the end of 20 years. Following the Tax Cuts and Jobs Act of 2017, NOL carryforwards are no longer subject to the 20 year limitation.

pills to pre-emptively protect future accumulations of NOL carryforwards, then I expect a positive association. While protecting future accumulations from limitation could be value-enhancing for the firm, this is contingent upon a firm's ability to use its NOL carryforward in the future. I posit that firms adopting NOL poison pills to protect their ability to use the NOL carryforward in the near-term is a more positive signal of firms adopting NOL poison pills for their stated purpose of protecting NOL carryforwards from limitation. Thus, I interpret a negative coefficient on *ChangeTLCF* as more positive evidence of firms adopting NOL poison pills in order to protect NOL carryforwards.

Because firms could adopt NOL poison pills for other purposes (e.g., limiting takeover opportunities or increases in shareholder influence), I also examine whether corporate governance measures, specifically board structure characteristics, have an impact on the likelihood of NOL poison pill adoption. When corporate governance is weaker, management is able to extract greater rents from the firm, increasing potential agency conflicts. Prior literature finds that weaker corporate governance is associated with a multitude of firm outcomes including increased CEO compensation (Bebchuk and Grinstein, 2005; Core, Holthausen, and Larcker, 1999; Hill and Phan, 1991), decreases in firm performance (Brick, Palmon, and Wald, 2006; Core et al., 1999), and lower financial reporting quality (Larcker, Richardson, and Tuna, 2007), among others. Poison pills are controversial because they limit investors' ability to acquire more control of the firm without facing strong penalties, increasing potential agency conflicts between shareholders and management (Bebchuk, Cohen, and Ferrell, 2009; Malatesta and Walkling, 1988). Agency theory suggests that perceived agency conflict can have negative implications for firm value as investors impound the uncertainty of management's actions into

the value of the firm (Jensen and Meckling, 1976). Thus, understanding the true nature of NOL poison pill adoptions is relevant to all stakeholders in a firm. If firms are more likely to adopt NOL poison pills when corporate governance is stronger, this provides support that firms are less likely to adopt NOL poison pills for reasons other than their stated purpose. Conversely, if firms are more likely to adopt when corporate governance is weaker this increases the likelihood that firms obfuscate their true intentions of adopting NOL poison pills.¹¹ Prior literature examining poison pill adoptions finds that governance characteristics are influential in the decision to adopt a poison pill. Specifically, the structure of the board, the ownership of insiders, and the influence of the CEO have all been found to be associated with the likelihood of adoption (Davis, 1991; Field & Karpoff, 2002; Heron and Lie, 2006, Schepker and Oh, 2013). Because the adoption of a poison pill is an action taken by the board of directors, I specifically examine this using four corporate governance characteristics that are associated with board structure: whether the CEO is also chairman of the board (i.e., CEO duality), the percentage of independent directors on the board, the average tenure of the board, and the ownership percentage of the board.

When a CEO is also chairman of the board, she has a greater amount of power and influence over the firm and over the board of directors. Prior literature finds conflicting evidence on the association between CEO duality and poison pill adoptions. Specifically, Malette and Fowler (1992) and Field and Karpoff (2002) find that CEO duality is positively associated with the adoption of poison pills while Heron and Lie (2006) find a negative association. These discrepancies could be associated with differences in sample composition as each study uses

¹¹ It is possible that firms with worse corporate governance adopt NOL poison pills for their stated purpose. It is also possible that firms with perceived levels of good corporate governance adopt NOL poison pills as a means to increase future managerial entrenchment.

significantly different settings.¹² Because CEO's have an incentive to protect their position at the firm, I expect that CEO duality will be negatively (positively) associated with NOL poison pill adoptions if the pill is (is not) adopted for its stated purpose. The board of directors role is to monitor firm management to reduce agency conflicts between management and shareholders. The composition of the board of directors is then pivotal to the underlying monitoring structure at a firm. I use the percentage of independent directors as a proxy for the composition of the board. Prior literature finds that the percentage of independent directors on the board is positively associated with the adoption of poison pills (Schepker and Oh, 2013). As the percentage of independent directors on the board increases, the likelihood of a firm's management influencing the board decreases. Because the percentage of independent directors is positively related to corporate governance, I expect that the percentage of independent directors will be positively (negatively) associated with NOL poison pill adoptions if the pill is (is not) adopted for its stated purpose. Board tenure also contributes to how effectively the board is able to monitor management. As the average board tenure increases, the likelihood of management influencing the board increases. Prior literature finds that director tenure is associated with a decreased likelihood of CEO turnover (Dah and Frye, 2017) and lower firm performance (Huang and Hilary, 2018), suggesting that boards with longer tenures monitor less effectively.¹³ Because the amount of influence management has over the board is positively related to board tenure, I expect that board tenure will be negatively(positively) associated with the adoptions if the pill

¹² Malette and Fowler (1992) focus their study on manufacturing firms, Field and Karpoff (2002) focus on IPO firms, and Heron and Lie (2006) focus on firms that were subject to an unsolicited takeover.

¹³ Huang and Hilary (2018) find an inverted U-shape pattern on the relation between firm performance and board tenure. Specifically they find an increase in firm performance in younger boards, but that this reverses after approximately ten years.

is(is not) adopted for its stated purpose. Finally, because I am interested in the impact that board characteristics have on the adoption decision, I use board ownership, rather than insider ownership.¹⁴ Prior literature finds that insider ownership decreases the likelihood (Heron and Lie, 2016; Mallette and Fowler, 1992) and rate of poison pill adoption (Davis, 1991). As board ownership increases, board members have more incentive to protect shareholder wealth, thus, I expect that board ownership will be positively(negatively) associated with adoptions if the pill is (is not) adopted for its stated purpose.

I also examine characteristics associated with poison pill adoptions including firm size, market performance, prior operating performance, institutional ownership, and sales growth. Prior literature finds that firm size, market performance, and sales growth are all negatively associated with the likelihood of poison pill adoption (Comment and Schwert, 1995; Davis, 1991; Heron and Lie, 2006, 2015). Conversely, institutional ownership is positively associated with poison pill adoptions (Davis, 1991; Mallette and Fowler, 1992). There is conflicting evidence on the role of operating performance in poison pill adoption decisions. Heron and Lie (2006) find that industry-adjusted operating income before depreciation is positively associated with the likelihood of adoption while Malatesta and Walkling (1988) find univariate evidence that firms that adopt poison pills are less profitable in years preceding the adoption. I also examine the role of leverage and firm age as prior literature finds that they are both influential in takeover likelihood (Tunyi, 2019, Palepu, 1986) and Datta and Iskandar-Datta (1996) find that leverage rises in the year of poison pill adoption. While boards specify that they adopt NOL

¹⁴ I perform additional, untabulated analyses examining insider ownership as well by separating ownership into independent board members, executive board members, and non-board member executives. I find some evidence that independent board members' ownership percentage is positively associated with the likelihood of adoption, but this is inconsistent across the domestic-only and prior adopt subsamples.

poison pills to protect their ability to use NOL carryforwards in the future, they could also adopt them solely as a more protective anti-takeover device. The lower trigger limit and longer active length of an NOL poison pill could create a stronger barrier against takeovers, relative to other poison pills. Alternatively, firms might adopt NOL poison pills to protect their NOL carryforwards because they perceive the risk of a takeover or IRC Section 382 ownership change occurring is high.¹⁵ Because the likelihood of a takeover or ownership change should impact the decision to adopt the NOL poison pill, regardless of intent, it is necessary to include these characteristics in the determinants model. Because the poison pill adoption studies use significantly different samples and time periods, my study can contribute by providing additional evidence on the role of these characteristics on a specific-purpose poison pill adoption and by providing additional evidence where conflicting results are present in prior literature.

¹⁵ While a hostile takeover and an IRC Section 382 ownership change are not the same, if investors and acquiring entities perceive firm value similarly, characteristics that are associated with the likelihood of a takeover occurring could also be associated with the likelihood of triggering an IRC Section 382 ownership change.

SECTION III. RESEARCH DESIGN

Research Design

I first develop an expectation of the evolution of firm NOL carryforwards surrounding the adoption decision by estimating an event study examining the evolution of NOL carryforward balances in the periods surrounding the adoption of an NOL poison pill by estimating the following two-way fixed effects model:

$$NOL_{it} = \gamma_0 + \sum_{\gamma=-4}^{-1} \gamma Pre_{it} + \gamma Adopt_{it} + \sum_{\gamma=1}^5 \gamma Post_{it} + \gamma_6 ROA_{it} + FirmFE + YearFE + \eta_{it} \quad (1)$$

where *NOL* is the value of the NOL carryforward (*TLCF*), scaled by total assets. I include return on assets (*ROA*) to account for the variation in a firm's performance that could have an impact on a firm's NOL carryforward. Coefficient estimates on the pre- and post-indicators indicate the trend in the balance or change in NOL carryforward, relative to the average value for the firm in the periods outside the window, all else equal. Figure 1 presents the results of this estimation. There appears to be a clear trend in both the pre- and post-adoption periods. Specifically, there appears to be increases leading up to the year of adoption and decreases following the year of adoption. This suggests that there is a potential materiality and timing aspect to the adoption of an NOL poison pill and that the board could use their knowledge of the future NOL carryforward in their decision-making. Because of this, I include in my main model, the variable *ChangeTLCF*, which is the change in NOL carryforwards from years *t* to *t*+1, scaled by total assets, to approximate management's current expectation of the future change in the NOL carryforward balance.¹⁶ I also include *TLCF*, measured as the NOL carryforward, scaled by total

¹⁶It is important to note that the use of a perfect foresight variable makes strong assumptions about management's ability to accurately assess the future performance of a firm. If management's expectations are inaccurate then this is

assets, to capture the relative size of a firm's NOL carryforwards because these results suggest that NOL poison pills are adopted following periods of increases to the NOL carryforward balance.

To examine the firm characteristics that are associated with the likelihood of an NOL poison pill adoption, I estimate the following logit model:

$$\begin{aligned} Adopted_{it} = & \beta_0 + \beta_1 TLCF_{i,t-1} + \beta_2 ChangeTLCF_{i,t+1} + \beta_3 NOLCB_{it} + \beta_4 Limit382_{it} + \\ & \beta_5 CEODuality_{it} + \beta_6 \%IndBoard_{it} + \beta_7 BoardTenure_{it} + \beta_8 BoardOwnership_{it} + \\ & \beta_9 Log(AT)_{i,t-1} + \beta_{10} Salesgrowth_{i,t-1} + \beta_{11} BTMt_{i,t-1} + \beta_{12} Leverage_{i,t-1} + \beta_{13} Age_{it} + \\ & \beta_{14} ROA_{i,t-1} + \beta_{15} Acquisitions_{i,(t-1,t+1)} + \beta_{16} Foreign_{it} + \beta_{17} IOR_{it} + \beta_{18} Turnover_{it} + \\ & \beta_{19} PriorAdopt_{it} + \beta_{20} PriorAdoptTradPP + IndustryFE + YearFE + \varepsilon_{it} \end{aligned} \quad (2)$$

where i and t represent firm and fiscal year, respectively. The dependent variable, *Adopted*, is an indicator variable equal to one in the year of NOL poison pill adoption, zero otherwise.

A positive (negative) and significant coefficient on *TLCF* indicates that firms with larger NOL carryforwards are more (less) likely to adopt an NOL poison pill. A positive (negative) and significant coefficient on *ChangeTLCF* indicates that management's expectation of future increases in the NOL carryforward balance increase (decrease) the likelihood of NOL poison pill adoption. If both *TLCF* and *ChangeTLCF* are insignificant, I interpret this as evidence of firms adopting NOL poison pills against their stated purpose. By examining both the relative size and the expectation of the future change in NOL carryforwards I can disentangle whether firms adopt NOL poison pills based on overall materiality, expectations of the near future, or a combination

a noisy approximation of the information available to decision makers. To provide comfort that *ChangeTLCF* is capturing aspects of future taxable income I examine the correlation between *ChangeTLCF* and several measures including: increases in a firm's valuation allowance, which suggests that firm management believes there will not be enough taxable income to capture the deferred tax benefits recorded, analyst's estimates of tax expense, and analyst's estimates of earnings per share. I find a positive(negative) correlation between increases in the valuation allowance (analyst tax expense and earnings per share estimates) suggesting that increases in *ChangeTLCF* do in fact capture decreased future firm performance.

of both. I include *NOLCB* and *Limit382* in my model to capture any variations in a firm's federal tax situation that could impact the decision to adopt an NOL poison pill. *NOLCB* is an indicator variable equal to one if a firm had positive federal income tax expense in either t-2 or t-1, zero otherwise and is a proxy for the ability of a firm to carryback an NOL. *Limit382* is a proxy for the potential IRC Section 382 limit, which I include in my model to control for variations in the restrictiveness of triggering an ownership change.¹⁷

I include *CEODuality*, *%IndDirector*, *BoardTenure*, and *BoardOwnership* to capture the strength of corporate governance on the board of directors. *CEODuality* is an indicator variable equal to one if the CEO is also the chairman of the board, zero otherwise. *%IndDirector* is the percentage of independent directors on the board, *BoardTenure* is the average tenure of the board, and *BoardOwnership* is the total ownership percentage of the board of directors. To isolate the impact of NOL carryforward and corporate governance characteristics on the NOL poison pill adoption, I also include a set of known characteristics of poison pill adoptions. These firm characteristics include firm size, market performance, sales growth, and firm operating performance. To capture firm size, I include the natural logarithm of total assets, in year t-1. I control for market performance with the book-to-market ratio, *BTM* in t-1. I include *ROA* to capture firm operating performance. I use pre-tax income to compute *ROA*, to remove any tax effects that might impact firm performance as I am interested in how the NOL carryforward characteristics of a firm impact the likelihood of NOL poison pill adoption. I also include institutional ownership, *IOR*, to capture institutional ownership, measured in year t. Literature

¹⁷ The federal long-term tax exempt interest rate is a key component of this measure. Over the period 2010 – 2019, the federal long-term tax-exempt interest rate has ranged between 1.47% and 4.55% and has generally declined over time.

examining takeover likelihood finds that firms with a mismatch in growth resources are often a target for takeover (Tunyi, 2019, Palepu, 1986). To control for this, I include *Leverage*, which is the value of long-term debt over total assets. Prior literature finds that a firm's age is negatively associated with the likelihood of a takeover (Danbolt, Siganos, and Tunyi, 2016; Loderer and Walchli, 2015; Tunyi, 2019) so I also include *Age* in my model.

I include other firm-specific characteristics to account for any firm variation that might influence the decision to adopt an NOL poison pill. Because firms that engage in acquisitions increase their likelihood of triggering an IRC Section 382 limitation, I include *Acquisitions*, which is a variable equal to one if a firm engages in an acquisition at any time during the period $t-1$ to $t+1$, zero otherwise. Because multinational firms might not have the same level of risk of exposure to IRC Section 382, I include *Foreign*, which is an indicator variable equal to one if a firm reports foreign operations, zero otherwise. Substantial ownership changes trigger IRC Section 382 and can occur among groups of shareholders that individually may not own significant shares of company stock; therefore I include *Turnover* which measures the average share turnover over the preceding three years to capture firms' ownership change exposure. Firms that have already had poison pill defenses in place may be more likely to adopt an NOL poison pill. Therefore, I also include *PriorAdopt* and *PriorAdoptTradPP* as indicator variables identifying when a firm has previously adopted an NOL poison pill or a traditional poison pill, respectively.

I include industry and year fixed effects. Industry fixed effects are based on one-digit SIC code and year fixed effects are based on a firm's fiscal year, as defined in Compustat. I winsorize

all continuous variables at the 1st and 99th percentile and cluster standard errors at the firm level (Petersen, 2009). All variables are defined in Appendix A.

Sample Selection

To address my research question, I create a sample of NOL poison pill adoptions from 2010 – 2019 by reviewing 8-K filings and Shareholder Rights Agreements. I use WRDS SEC Analytics Suite to search for firm’s 8-K filings with the following terms: “section 382”, “nol”, “net operating loss”, “tax attribute”, “tax benefit”, and “tax asset”. I then manually check all 8-K filings with item 1.01 – Entry into a Material Definitive Agreement or item 3.03 – Material Modifications to Rights of Security Holders to determine if the filing is due to an NOL poison pill adoption. I use both the 8-K filing and associated Shareholder Rights Agreement file to hand-collect information on each NOL poison pill.

I begin my sample in 2010 for two reasons. First, the landmark court case, *Selectica, Inc. v. Verstata Enterprises, Inc., and Trilogy, Inc.*, occurred in February 2010, so I include only those adoptions from 2010 onwards to better approximate the same legal environment for all firms.¹⁸ Second, I begin my sample in 2010 to eliminate concerns over the financial crisis in 2008. I use Compustat’s North America Fundamentals Annual database for firm fundamentals, CRSP for stock information, Thomson-Reuters 13F data for institutional ownership, WRDS Insiders Data for board and insider ownership, and BoardEx for board characteristics.¹⁹ I eliminate firm-year observations with missing variables. For NOL poison pill adopting firms, I

¹⁸ In *Selectica, Inc. v. Verstata Enterprises, Inc., and Trilogy, Inc.*, the court ruled in favor of the defendant, Selectica, and cited the potential consequences of triggering IRC Section 382 as sufficient reason to establish an NOL poison pill.

¹⁹ BoardEx also has board ownership information, however in many instances board members' ownership is designated as missing when ownership was below 1 percent.

drop any firm-year subsequent to an adoption, until the NOL poison pill is no longer in effect, to best approximate a firm's decision to adopt as firms with an active NOL poison pill will not have to decide to adopt again until the pill expires or the board repeals it. Further, I drop any firm-year observation that has an NOL poison pill in effect from an adoption prior to 2010. My first (*Unrestricted*) sample consists of 26,318 firm-year observations with 100 NOL poison pill adoptions. I also create a subsample where I restrict observations to those that have prior year *TLCF* greater than zero, to verify that my results are robust to excluding firms with no NOL carryforwards reported in the prior year.²⁰ The *Restricted* sample consists of 15,267 firm-year observations with 99 NOL poison pill adoptions. Finally, I create a subsample that restricts observations to those firm-years that have prior year NOL carryforwards greater than the estimated basic IRC Section 382 limit.²¹ The *Limit382* sample consists of 11,470 firm-year observations with 98 NOL poison pill adoptions.

²⁰ Restricting the sample to those firm-years with prior year NOL carryforwards greater than zero does not capture the effect of firms that generate NOL carryforwards in the current year or that expect to in a future year. That is, firms could choose to adopt an NOL poison pill in periods preceding tax losses. Therefore, I consider the first sample, *Unrestricted*, necessary.

²¹ If a firm's NOL carryforward is lower than its estimated IRC Section 382 limitation, then the limitation would not limit the firm's NOL carryforward usage.

SECTION IV. EMPIRICAL RESULTS

Determinants of NOL poison pills

Table 2 presents the descriptive statistics for the *Unrestricted* sample. The mean(median) of *TLCF* is 60.8% (1.1%) of a firm's beginning total assets, and the mean(median) of *ChangeTLCF* is 6.8% (0%) of a firm's ending total assets. The mean(median) board tenure of a firm is 8.635 (8.112) and the mean(median) of the percentage of independent directors is 83.6% (85.7%). 40% of firm-years have a dual-appointed CEO and the mean(median) board ownership at a firm is 2.2% (0.5%). Table 3 details the NOL poison pill adoptions by year and Table 4 details the distribution of firm-year observations by one-digit SIC code. Firms adopted the most poison pills in 2016 (19), but there appears to be no systematic pattern of adoption during the sample period. Of the 100 adoptions, 23 are in the Retail Trade sector (SIC Code 6), 23 are in the Manufacturing sector (SIC Code 3), and 18 are in the Finance, Insurance, and Real Estate sector (SIC Code 7). In untabulated analysis, I find that the mean market-adjusted cumulative abnormal return for the window (-2,2) surrounding the NOL poison pill adoption event is -0.004% with and without confounding events, suggesting that the average reaction to NOL poison pill adoption is negative, consistent with prior literature (Sikes et al., 2014).²²

Table 5 presents the results from tests of differences in means between NOL poison pill adoption firm-years and non-adoption firm-years. Panel A presents the results of the main *Unrestricted* sample. I find that adopting firms have significantly larger NOL carryforward balances, as a percentage of firm assets, are less likely to have the ability to carryback an NOL to

²² I identify confounding events as any 10-K, 10-Q, DEF 14A, or 8-K filings announcing firm operations (2.02), a change in certifying accountant (4.01), or a restatement (4.02) for a Regulation FD disclosure (7.01) submitted during the event window.

the previous two years, and have a significantly lower estimated IRC Section 382 limit in the year of adoption. I also find significant differences in corporate governance characteristics. Specifically, adoption firm-years are associated with significantly lower board tenure, are less likely to have a CEO who is a chairman of the board, and have a higher percentage of board ownership. The results for *NOLCB*, *Limit382*, and *BoardTenure* could be due to differences in firm age (*Age*) and firm size (*Log(At)*) as adopting firms are significantly younger and smaller than non-adopting firms. Panel B shows the results using the *Restricted* sample. I find similar results on the tax characteristics and the corporate governance variables. In addition, *ChangeTLCF* is significantly smaller for adoption firm-years. Finally, Panel C shows the results using the *Limit382* sample. Results are similar to Table 5, Panel B. These preliminary results suggest that NOL carryforwards are associated with the adoption of NOL poison pills and that firms that adopt these pills are associated with theoretically stronger corporate governance.

Table 6 presents the results of my estimation of Equation (2), examining the determinants of NOL poison pill adoptions. Table 6, Panel A presents the results of estimating the full sample for each of the subsamples (*Unrestricted*, *Restricted*, and *Limit382*) in Columns 1, 2, and 3, respectively. In Panel A, Column (1) I find that *TLCF* is positively and significantly associated with the adoption (p-value < 0.001) and that *ChangeTLCF* is negatively and significantly associated with the adoption (p-value < 0.001). This suggests that both the relative size of the NOL carryforward and the expectation of the future change in the balance of the NOL carryforward are influential in the decision to adopt an NOL poison pill. *NOLCB* is negative and significant (p-value < 0.10), suggesting that firms who could carryback an NOL are less likely to adopt an NOL poison pill. I also find that *BoardTenure* is negatively and significantly associated

with the likelihood of adoption (p-values < 0.001). This suggests that firms that exhibit weaker corporate governance are less likely to adopt an NOL poison pill. Among the takeover characteristics, I find that *BTM*, *Leverage*, and *Turnover* are positively and significantly associated with the likelihood of adoption while *IOR* is negatively and significantly associated with the likelihood of adoption. The positive association between *Turnover* and adoptions provides some limited evidence of boards adopting NOL poison pills when an IRC Section 382 limit is more likely. The results for the *Restricted* and *Limit382* samples in Columns 2 and 3, respectively, are largely consistent with increased significance on *%IndDirector* and *Foreign* and decreased significance on *NOLCB*. All coefficients are directionally consistent.

Table 6, Panel B shows the results of my analysis using a domestic-only subsample. For the majority of my sample period, the United States imposed federal income tax on all sources of income for U.S. multinational corporations, changing to a territorial system in 2018 with the passage of the Tax Cuts and Jobs Act of 2017. While U.S. firms with foreign operations are subject to the federal tax code, certain tax provisions alter the federal income tax decision-making environment for firms with foreign operations.²³ Because U.S. firms with foreign operations have a different decision-making environment for U.S. federal income taxes, I generate a subsample of firms with domestic-only operations as firms with foreign operations could have conflicting incentives between foreign and federal income tax policies and might weigh the consequences of IRC Section 382 differently than those without. This subsample helps to limit any potential confounding decision-making impact that might exist for U.S. multinational firms.

²³ These provisions include loopholes for non-repatriated foreign earnings and foreign tax credits, among others.

Results on the NOL carryforward characteristics are robust to my original specifications. In addition, the coefficient on *%IndDirector (BoardTenure)* is positive (negative) and significant in all three specifications. I also find that the coefficient on *Limit382* is negative and significant in the *Restricted* and *Limit382* subsamples. This suggests that the restrictiveness of the basic IRC Section 382 limit is positively related to the NOL poison pill adoption for domestic firms. That is, as the limit decreases (i.e., becomes more restrictive) the likelihood of adoption increases.

In Panel C, I restrict the sample to those firms that did not previously adopt an NOL poison pill to confirm my results are not due to firms that adopt NOL poison pills frequently. Results are similar with those in Panel A. Together, these results suggest that the relative size and expectation of the future change in a firm's NOL carryforward matters in the decision to adopt an NOL poison pill. While firms might use the relative size of the NOL carryforward balance as justification to adopt the pill, the significance on *ChangeTLCF* suggests that boards are thinking proactively about their NOL carryforwards when adopting, providing evidence in favor of firms adopting the pills for their stated purpose. There is also some limited evidence that firms are less likely to adopt NOL poison pills when their federal income tax circumstances allow firms to use NOLs or to minimize the impact of an IRC Section 382 limitation. Further, the impact of corporate governance characteristics on the adoption decision strengthens these findings and mitigates concerns about managerial entrenchment as firms are more likely to adopt NOL poison pills when they exhibit stronger governance characteristics. These findings are similar across the *Unrestricted*, *Restricted*, and *Limit382* sample specifications.²⁴

²⁴ Rare events could bias logit estimates. To address this concern, I re-estimate the determinants model specifications using a penalized likelihood approach following the correction in Firth(1993) by using the *firthlogit* command in Stata. Results are robust.

SECTION V. ADDITIONAL ANALYSIS – DETERMINANTS

Types of Institutional Ownership

In my initial analysis, I find that institutional ownership (IOR) is negatively and significantly associated with the likelihood of adopting an NOL poison pill in two of three specifications (i.e., the full and prior adopt subsamples). This is inconsistent with prior literature as institutional ownership has been positively associated with the adoption of traditional poison pills (Davis, 1991; Mallette and Fowler, 1992). This discrepancy could be due in part to major differences in sample composition as both Davis (1991) and Mallette and Fowler (1992) use small sample evidence from large firms. Prior literature suggests that institutional owners are more sophisticated and wield greater amounts of influence than average investors (Bushee, Carter, Gerakos, 2014). However, not all institutional investors have the same level of influence and this could lead to differences in the adoption decision by the board of directors. To further explore this, I replace *IOR* in Equation (2) with three separate classification variables (i.e., *Dedicated IOR*, *Quasi-Indexer IOR*, and *Transitory IOR*), following the classifications from Bushee (1998) and representing the amount of ownership among each type of institutional investor. Among these classifications, dedicated institutional owners are known for taking a long-term relationship-focused approach to investing while both quasi-indexer and transitory investors have a hands-off approach to investing, with either a long or short-term focus, respectively. Table 7 presents the results of these analyses. In Table 7, Panel A, I find that dedicated institutional investors (*Dedicated IOR*) are positively and significantly associated with the decision to adopt, while quasi-indexer institutional investors (*Quasi-Indexer IOR*) are negatively and significantly associated with the decision to adopt. I find no evidence that transitory institutional investors (*Transitory IOR*) have any influence on the adoption decision.

The results are consistent for the specifications of first-time adopters in Table 7, Panel C. For the domestic-only specifications in Table 7, Panel B, I find limited evidence of a positive impact on the likelihood of adoption for dedicated institutional investors in Column 1. While insignificant elsewhere, the coefficient signs on both *Quasi-Indexer IOR* and *Dedicated IOR* are still consistent with the main specification.

Because dedicated institutional investors are likely to take a hands-on approach to investing and be in contact with the board of directors, I interpret the positive coefficient on *Dedicated IOR* as evidence that dedicated institutional investors support the board's decision to adopt an NOL poison pill. Similarly, the negative coefficient on *Quasi-Indexer IOR* suggests that investors with less of a relationship focus are less likely to support an NOL poison pill adoption, as the board is less likely to adopt. This could be due in part to quasi-indexers' skepticism of board actions, as they have a more limited relationship with the board than dedicated investors. Together, these results suggest that the board weighs the possible relationship and reaction from institutional investors before choosing to adopt.

Moderating Impact of Governance

I next examine whether stronger corporate governance moderates the impact of NOL carryforward characteristics on the likelihood of adoption. To examine this, I use principal components analysis to reduce the dimensionality of my corporate governance characteristics (*CEODuality*, *%IndDirector*, *BoardTenure*, and *BoardOwnership*). I retain the first principal component which has an eigenvalue greater than one and explains 34.38% of the variation in the four characteristics. I then re-estimate Equation 2, replacing the corporate governance variables with *Governance*, which is the retained principal component increasing in stronger corporate governance, to confirm that results are unchanged from my main analysis. Table 8, Panel A

shows consistent results with my main analysis, using *Governance*, as stronger corporate governance is positively associated with the likelihood of adoption. I then split *Governance* at the median and modify Equation 2 to include the indicator variable, *StrongGov*, an indicator variable equal to one when *Governance* is above the median, zero otherwise, and interactions between *TLCF* and *ChangeTLCF*, respectively. In my main analysis, I find that *TLCF* and *ChangeTLCF* are positively and negatively associated with the decision to adopt, respectively. If firms, on average, adopt NOL poison pills to protect their NOL carryforwards in the future, then I expect stronger corporate governance to have no moderating effect on the adoption decision. However, if firms do, on average, adopt NOL poison pills for other purposes, I expect that the NOL carryforward characteristics will have a greater impact on the likelihood of adoption when firms have stronger corporate governance. Specifically, I would expect a positive and significant coefficient on the interaction between *StrongGov* and *TLCF* and a negative and significant coefficient on the interaction between *StrongGov* and *ChangeTLCF*. A positive and significant coefficient on the interaction between *StrongGov* and *TLCF* indicates that firms with stronger corporate governance place greater emphasis on NOL carryforward materiality in their decision-making process, relative to those with below-median corporate governance. A negative and significant coefficient on the interaction between *StrongGov* and *ChangeTLCF* indicates that firms with stronger corporate governance are less likely to adopt an NOL poison pill when they anticipate future increases to the NOL carryforward, suggesting that boards would adopt the pill in periods before they expect to use it.

Table 8, Panel B shows the results of modified Equation 2 for all three samples. I find no moderating effect on the relative size of the NOL carryforward (*TLCF*) or the expectation of future NOL carryforward balances (*ChangeTLCF*). I also test to see if the joint significance of

the main effect for *TLCF* and *ChangeTLCF* and their respective interactions are different from zero. In all specifications I find that the total effect of *TLCF* is positive and significant (p-value < 0.001) and the total effect of *ChangeTLCF* is negative and significant (p-value < 0.01), consistent with my main results. In Table 8, Panels C and D I find no significance on the interactions, but still find the total effect of *TLCF(ChangeTLCF)* is positive (negative) and significant. Together, these results suggest that the strength of corporate governance does not moderate the impact of NOL carryforward characteristics providing further positive evidence of firms adopting NOL poison pills for their stated purpose of protecting NOL carryforwards.

Comparing NOL Poison Pill and Traditional Poison Pill Adoptions

NOL poison pills are a specific-purpose poison pill. As such, many of the fundamental characteristics associated with traditional poison pill adoptions are also key determinants of my analysis. Because my research question focuses on disentangling whether it appears that boards of directors adopt NOL poison pills to protect NOL carryforwards instead of using them as a more protective traditional poison pill, it is necessary to examine whether the adoption of an NOL poison pill and a traditional poison pill vary substantially. I expect that if boards adopt NOL poison pills to protect the NOL carryforward, as opposed to protecting against takeover attempts (the purpose of traditional poison pills) then at a minimum the NOL carryforward characteristics that are influential in the NOL poison pill adoption will not be influential in the traditional poison pill adoption.

To address this, I create an additional sample of traditional poison pill adoptions and estimate the likelihood of adoption. In order to ensure that I am making a clean comparison between NOL poison pill adoptions and traditional poison pill adoptions I restrict each comparison sample to the non-adopting firm observations and the respective poison pill type

firm observations.²⁵ Table 9 presents the results of the side-by-side comparison of NOL and traditional poison pill adoption likelihood. Table 9, Column 1 shows the results for the *Unrestricted* sample. The results for the NOL poison pill adoption remain similar to my main analysis. In contrast, the NOL carryforward characteristics for the traditional poison pill adoption are not significant. This provides comfort that the NOL poison pill is associated with NOL carryforwards and my model is capturing the likelihood of NOL poison pill adoption, as opposed to simply traditional poison pill adoptions. There are also distinct differences in certain other characteristics including board tenure, firm size, age, and institutional ownership. While both negative and significant, *BoardTenure* has a greater magnitude and significance (p-value < 0.01 vs. p-value < 0.10) for NOL poison pill adoptions. Additionally, while insignificant for NOL poison pill adoptions, firm size (*Log(At)*) and firm age (*Age*) is negatively and significantly associated with traditional poison pill adoptions, suggesting that larger and older firms are less likely to adopt a traditional poison pill, all else equal. The results on traditional poison pill adoptions for firm size are consistent with prior literature, which finds that the likelihood of poison pill adoption is negatively associated with firm size (Comment and Schwert, 1995; Davis, 1991; Heron and Lie, 2006, 2015) Finally, results suggest that institutional ownership, *IOR*, is negatively and significantly associated with NOL poison pill adoptions, but insignificant for traditional poison pill adoptions. Results are consistent across the different specifications in columns 2 and 3. Together, these comparisons suggest that Equation 2 appropriately captures

²⁵ That is, if a firm adopts an NOL poison pill at any time during my sample I do not include it in the traditional poison pill sample and vice versa. This helps to eliminate any noise in estimation that might arise from a firm deciding to adopt a poison pill that differs from their previous poison pill choices, if any.

NOL poison pill adoption likelihood and that the characteristics associated with NOL and traditional poison pill adoptions are succinctly different.²⁶

²⁶ I note that the ROC of my traditional poison pill adoption tests do exceed those of the NOL poison pill adoption tests by approximately 3 percentage points. This could be in part due to the larger number of traditional poison pill adoptions, relative to NOL poison pill adoptions. However, to verify that the tax characteristics included in my determinants model do capture additional information for the NOL poison pill adoptions and by a greater factor than traditional poison pill adoptions, I re-estimate both the NOL poison pill adoption and traditional poison pill adoption comparison tests without the tax characteristics (i.e., *TLCF*, *ChangeTLCF*, *NOLCB*, and *Limit382*). I find (untabulated) that the inclusion of tax characteristics increases the ROC for NOL poison pill adoptions by approximately 2 percentage points with no corresponding change for the traditional poison pill adoptions. This provides further comfort that the tax characteristics do provide additional information in the NOL poison pill adoption decision.

SECTION VI. FUTURE EARNINGS ANALYSIS

Future Earnings

I next examine if NOL poison pill adoptions are associated with future earnings. My initial analysis suggests that firms are less likely to adopt these pills when NOL carryforwards increase in the near future. This is suggestive of firms adopting these pills to protect future usage of the NOL carryforwards, rather than future accumulations. If firms adopt these pills preceding periods in which they are able to use their NOL carryforwards, then the adoption could provide incremental information about the firm's future outcomes. Prior literature, which primarily focuses on the valuation allowance, finds that tax information has incremental information content, reflecting management's private information (Dhaliwal, Kaplan, Laux, and Weisbrod, 2013; Edwards, 2018). Specifically, changes in a firm's valuation allowance provide incremental information about the persistence of losses (Dhaliwal et al., 2013) and a firm's future creditworthiness (Edwards, 2018). My study extends this literature by examining whether the adoption of an NOL poison pill provides incremental information on a firm's future earnings.

When firms adopt NOL poison pills they cite the need to protect the ability to use NOL carryforwards in the future. To use the NOL carryforward in the future, a firm must have future taxable income to offset. Thus, the adoption of an NOL poison pill could reflect management (and the board's) private information related to future earnings. While my initial evidence suggests that firms are less likely to adopt an NOL poison pill when the NOL carryforward balance increases in the near term, it remains an empirical question whether the adoption is associated with future earnings.²⁷

²⁷ There is an intrinsic link between income(loss) and decreases(increases) to the NOL carryforward balances. To the extent that pretax earnings are positively correlated with taxable income, pretax income(loss) should lead to decreases(increases) in the NOL carryforward, with few exceptions. However, pretax earnings will not always be

To examine whether NOL poison pill adoptions are associated with future earnings, I estimate the following OLS specification:

$$\begin{aligned} PreTaxEarnings_{i,t+1} = & \lambda_0 + \lambda_1 Adopted_{it} + \lambda_2 PreTaxEarnings_{it} + \lambda_3 Cashflow_{it} + \\ & \lambda_4 |ChangePreTaxEarnings|_{it} + \lambda_5 Negspiw_{it} + \lambda_6 Negnop_{it} + \lambda_7 Negglis_{it} + \lambda_8 Negglcf_{it} + \\ & \lambda_9 Salesgrowth\%_{it} + \lambda_{10} Age_{it} + \lambda_{11} R\&D_{it} + \lambda_{12} Log(MVE)_{it} + \lambda_{13} BTM_{it} + \lambda_{14} FirstLoss_{it} + \\ & \lambda_{15} BigLoss_{it} + \lambda_{16} Dividend_{it} + FirmFE + YearFE + \varepsilon_{it} \end{aligned} \quad (3)$$

where $PreTaxEarnings_{t+1}$ is the one-year ahead pretax earnings, scaled by lagged total assets and my variable of interest is the indicator variable, *Adopted*.²⁸ I include control variables found in Dhaliwal et al. (2013) to control for earnings quality (*Cashflow*, $|ChangePreTaxEarnings|$), firm growth and firm growth prospects (*Salesgrowth%*, *Age*, and *R&D*), loss information (*FirstLoss*, *BigLoss*), typically non-recurring earnings components (*Negspiw*, *Negnop*, *Negglis*, and *Negglcf*) and other firm fundamentals used in prior literature examining earnings predictability (*Log(MVE)*, *BTM*, and *Dividend*) (Chi, Pincus, and Teoh, 2014; Finley and Ribal, 2019).²⁹ All variables are defined in Appendix A. I also include firm and year fixed effects and cluster standard errors by firm.

The coefficient λ_1 approximates the difference-in-differences estimate of future earnings for firms that adopt an NOL poison pill (Bertrand and Mullainathan, 2003; Imbens and Wooldridge, 2009). A positive(negative) and significant coefficient on λ_1 indicates that future earnings increase(decrease) more for those firms that adopt an NOL poison pill, relative to those who do not in the year following adoption. Table 10 presents the results. The coefficient on *Adopted* is positive and significant (p-value < 0.001) in all three specifications, suggesting that a

indicative of taxable income due to book-tax differences. Thus, it is important to understand the actual relation between NOL poison pill adoptions and pretax earnings.

²⁸ I also estimate this using pretax domestic earnings. Results are consistent.

²⁹ Dhaliwal et al. (2013) focuses on loss firms. I include both profitable and loss firms in my sample, so consider the controls used in this model the most appropriate.

firm's future earnings increase more, following the adoption of an NOL poison pill, relative to non-adopting firms. This finding complements my main analysis which finds that firms are less likely to adopt NOL poison pills when the NOL carryforward increases in the near term.

Together, this evidence suggests that the adoption of an NOL poison pill could be a signal of increased future earnings. Thus, it appears that the adoption of an NOL poison pill could be a positive signal to investors reflecting private information about future earnings.

Future Earnings Event Study

To better understand the link between NOL poison pill adoptions and future pretax earnings, I expand my analysis and conduct an economic event study to determine how the association between pretax earnings and NOL poison pill adoptions evolves over a longer time period. In order to do so, I expand my sample to include years beginning in 2008 to ensure that I do not drop any 2010 adoptions.³⁰ I then estimate the following two-way fixed effects model:

$$PreTaxEarnings_{it} = \lambda_0 + \lambda_1 PreAdoption_{it} + \lambda_1 Adopted_{it} + \sum_{\gamma=3}^5 \lambda PostAdoption_{it} + \sum \lambda Controls_{i,t-1} + FirmFE + YearFE + \varepsilon_{it} \quad (4)$$

where *PreAdoption* equals one if the fiscal year is the year immediately preceding an NOL poison pill adoption, zero otherwise and the successive *PostAdoption* indicators are equal to one in the one, two, or three fiscal years following an NOL poison pill adoption. In contrast to Equation 3, I measure *PreTaxEarnings* in year *t* and all controls in *t-1*. Thus, the coefficients on the *PreAdoption*, *Adopted*, and the respective *PostAdoption* indicators represent the within-firm change in pretax earnings relative to time periods outside of the (*t-1*, *t+3*) adoption window, all else equal. Table 11 presents the results of this estimation and Figure 2 shows a visual representation of the coefficient estimates for the *Unrestricted* sample. In all specifications, there

³⁰ I ensure that I only retain firms that were in my original sample for consistency.

is a clear increase in *PreTaxEarnings* in the post-adoption years ($p\text{-value} < 0.05$). These results are consistent using either future worldwide pretax earnings or domestic-only pretax earnings and provide further evidence that boards adopt NOL poison pills in periods preceding better future firm performance. In addition, the results suggest that the increase in performance appears to continue over successive periods.

Partitioned on Future PreTaxEarnings

In my initial analysis, I find that boards are less likely to adopt an NOL poison pill when they expect increases in the NOL carryforward. I further find that the adoption precedes periods of increased pretax earnings and that this lasts several periods after the adoption year. This is indicative of boards adopting NOL poison pills in periods before increased earnings when they expect to be able to use the NOL carryforwards in the near future. In general, the mechanical association between changes in the NOL carryforward balance and future pretax earnings is negative as NOL carryforwards increase when there is a tax loss and decrease when there is taxable income to offset the carryforward.^{31,32} While results suggest that firms experience increases in pretax earnings in periods following an NOL poison pill adoption, it is unclear whether the firm has a future income or loss position. Because firm performance impacts market reactions and takeover considerations it is possible that boards of directors could have different incentives to adopt an NOL poison pill if they expect future income or loss. Because I am interested in whether the board of directors adopts NOL poison pills in order to protect the NOL carryforward I re-examine my original determinants model (Equation 2) by partitioning on future

³¹ This assumes that pretax earnings and taxable income have similar coefficient signs in all instances. There could be some instances in which pretax earnings are positive but there is a taxable loss due to deferred taxes and vice versa. However, in general, as pretax earnings increase so should taxable income.

³² There are instances in which the NOL carryforward could increase or decrease for reasons unrelated to pretax earnings. Specifically, a firm could acquire additional NOL carryforwards through an acquisition or NOL carryforwards can expire.

pretax income and loss. I focus my attention specifically on the NOL carryforward characteristics and examine whether they differ. If the impact of NOL carryforward characteristics for future pretax income and loss firm observations differ substantially from my original analysis, I interpret this as evidence against the board of directors adopting NOL poison pills in order to protect NOL carryforwards.

Table 12 presents the results of this analysis. In all specifications I find that the coefficient on *TLCF* is positive and significant, similar to my initial analysis. I also find that the coefficient on *ChangeTLCF* is negative in all specifications, though is not significant for future income partitions for both the *Restricted* and *Limit382* subsamples in Columns 2 and 3, respectively. Additionally, in Column 1, the magnitude of the coefficient on *ChangeTLCF* is greater for the future income partition, though less significant (p-value < 0.10). In all specifications and partitions the sign of the coefficient is the same as my main analysis. Further, the results for the future loss observations, where boards of directors would be most likely to obfuscate their true intentions due to the repercussions of poor firm performance do not differ from my main analysis. Together, these results suggest that there is no underlying difference in the decision-making process for the board of directors to adopt an NOL poison pill dependent upon future pretax income or loss.

SECTION VII. ROBUSTNESS – FUTURE OUTCOMES

Endogenous Treatment Concerns

Adopting an NOL poison pill is a non-random choice by a firm's board of directors. This could cause self-selection bias in my estimates if an unobservable factor that is also correlated with my outcome(s) of interest influences the decision to adopt. For example, if the board has unobservable private information regarding future changes in the NOL carryforward balance or expectations of its usage, this private information could be correlated both with the adoption decision and future earnings. I address this concern in several ways.

First, my future earnings analyses use firm fixed effects, capturing any time-invariant firm-specific omitted variables. While the use of firm fixed effects should reduce many concerns over correlated omitted variables, it is also possible that any unobservable characteristic related to the decision to adopt could vary over time. Therefore, I also re-estimate my future earnings analyses using propensity score weighting (untabulated) to correct for imbalances between treatment and control covariates.³³ To the extent that self-selection into treatment is due to the differences in *observable* covariates, this should reduce bias in the estimates. After weighting, I still find a positive and significant coefficient on *Adopted* in the future pretax earnings tests however, the significance on the post-adoption indicators in the pretax earnings event study are no longer significant. Finally, I also address the impact that unobservables would need to have on my variable(s) of interest to eliminate any estimated effect following Oster (2019).³⁴ I estimate the relative degree of selection (i.e., delta) for both future earnings analyses. In all specifications, I find that the computed delta value is negative. A negative delta value indicates

³³ Because I cluster standard errors at the firm level, I must have a constant propensity score weight for each firm over the entire sample period. Therefore, I estimate the probability of a firm ever adopting an NOL poison pill in the sample to estimate the propensity scores.

³⁴ I use the Stata command, `psacalc`, to estimate the relative degree of selection (i.e., delta).

that the coefficient on my variable(s) of interest increases with additional controls, which suggests that unobservables are unlikely to be driving the estimated effect (Bernard, Kaya, and Wertz, 2021; Graham, Miller, and Strom, 2017; Dietrichson and Ellegard, 2015).³⁵

³⁵ In fact, a negative delta indicates that the inclusion of unobservables would be more likely to shift the coefficient of interest away from, not towards, zero.

SECTION VIII. CONCLUSION

Whether the board of directors takes actions to promote and protect shareholder interests or not is of chief concern to shareholders, who rely on the oversight role of the board of directors to promote and protect their interests. When this relationship breaks down, shareholders lower their perception of firm value, as evidenced by the negative market reactions to the adoption of poison pills. Thus, it is important to generate an understanding of the nuances of board actions to highlight whether these actions appear to be in shareholders' best interests or not. In this paper, I examine NOL poison pill adoptions and find that, on average, the adoption of an NOL poison pill reflects the board of directors taking an action to protect future firm value, aligning with shareholder interests. NOL poison pills are a controversial anti-takeover provision because they have much lower trigger limits (5%) compared to more traditional poison pills. Extant literature focuses on examining the impact of investor reactions to the adoption of these pills but provides little to no evidence on the characteristics that define the adoption decision or future consequences at the firm level. My study addresses this gap by examining both the characteristics of the adoption of NOL poison pills and the association with adoption and future earnings.

I find that both the relative size of the NOL carryforward and the expectation of the future change in the NOL carryforward are influential in the adoption. Further, it appears that firms are less likely to adopt when they expect future increases in the NOL carryforward balance, suggesting that firms adopt these pills when they expect to use the NOL carryforwards in the near-term. I also find that firms are more likely to adopt when corporate governance is stronger and that the level of corporate governance has no moderating impact on the adoption decision. Dedicated institutional ownership is positively associated with the likelihood of adoption, suggesting that these relationship investors approve of the adoption of NOL poison pills. I

confirm that my model appropriately captures NOL poison pill adoptions by comparing NOL poison pill adoptions and traditional poison pill adoptions and find that NOL carryforward characteristics and tax characteristics have no impact on traditional poison pill adoptions, providing comfort to the appropriateness of my model.

Finally, I find that the adoption of an NOL poison pill is associated with increases in future earnings and that this continues over a period of years following the adoption. I further find that the characteristics of NOL poison pill adoption do not vary based on future income or loss positions. This is suggestive of an underlying informativeness of these adoptions regarding future firm performance and should be of importance to investors.

This study has several limitations. First, NOL poison pill adoptions are a rare event and are associated with relatively poorer performing firms (i.e., those with historic losses), so results may not be generalizable to the population of firms. Second, the sample period spans two tax policy regimes (e.g., pre- and post-TCJA) which may have a confounding effect on adoption decisions. The rarity of the adoptions prevents a robust pre/post analysis ($n < 30$ in post years), but changes in NOL carryforward and business interest limitation rules pose an interesting setting for additional research in the future. Third, a key NOL carryforward characteristic, *ChangeTLCF*, estimates management's expectation of the NOL carryforward in $t+1$ using perfect foresight. Because future taxable income can be difficult to determine this estimate may not accurately reflect management's and the board's estimate for the future.

My study fills a gap in the literature by addressing the underlying firm characteristics and outcomes that are associated with NOL poison pill adoptions. Together, results suggest that boards adopt NOL poison pills to protect NOL carryforwards, as stated and that the adoption of an NOL poison pill provides a signal of future increases in firm performance. These results

should be informative to regulators, advisors, and shareholders who have expressed skepticism over these adoptions in the past.

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APPENDIX

Appendix A
Variable Definitions

NAME	DEFINITION	SOURCE(S)
<i>%IndDirector</i>	The percentage of independent board members on the board of directors.	BoardEx
<i>Acquisition</i>	Indicator variable equal to one if a firm engages in acquisition activity in any period from t-1 to t+1, zero otherwise. Where acquisition activity is defined as having cash (AQC) or stock (ACQCSHI) acquisition activity greater than 0.	Compustat
<i>Adopted</i>	Indicator variable equal to one if a firm adopts an NOL poison pill in the year, zero otherwise.	Hand Collection
<i>Age</i>	The age of the firm, calculated as the number of years of available data in Compustat.	Compustat
<i>BoardTenure</i>	The average tenure of the board of directors.	BoardEx
<i>BoardOwnership</i>	The ownership percentage of the board of directors. Determined as the sum of the number of shares owned by directors divided by common shares outcomes (CSHO) from Compustat. Where the number of shares owned are identified for each director from the last reported non-derivative insider transaction during the fiscal year.	Insiders Data by WRDS
<i>BTM</i>	Calculated as the book value of equity (CEQ) divided by the market value of equity. Where market value of equity is computed as the adjusted price time the adjusted shares outstanding, as reported in CRSP. If market value of equity is not available from CRSP, it is derived from Compustat as either the reported amount (MKVALT) or computed (CSHO*PRCC_F).	CRSP/ Compustat
<i>Cashflow</i>	Computed as (OANCF - XIDOC), scaled by lagged total assets.	Compustat
<i>CEODuality</i>	Indicator variable equal to one if the CEO is also chairman of the board.	BoardEX
<i> ChangePreTaxEarnings </i>	The absolute value of the change in pretax earnings from t-1 to t.	Compustat
<i>ChangeTLCF_{t+1}</i>	The change in TLCF from t to t+1, scaled by total assets (AT) in year t.	Compustat
<i>Dividend</i>	Indicator variable equal to one if a firm pays a dividend (DV > 0) in year t, zero otherwise.	Compustat

<i>FirstLoss</i>	Indicator variable equal to one if PreTaxEarnings are negative in year t and were positive in year t-1, zero otherwise.	Compustat
<i>Foreign</i>	Indicator variable equal to one if a firm reported foreign operations in year t, zero otherwise. If PIFO > 0 or TXDFO > 0 or TXFO > 0 then foreign = 1, zero otherwise.	Compustat
<i>Governance</i>	The first principal component of the following characteristics: CEODuality, BoardTenure, %IndDirector. Increasing in stronger levels of corporate governance.	N/A
<i>StrongGov</i>	Indicator variable equal to one if Governance is above the median, zero otherwise.	N/A
<i>InternalFunds</i>	Computed as (IB + DP)/Sale, as reported in Compustat.	Compustat
<i>IOR</i>	Institutional ownership percentage in year t.	Thomson-Reuters 13F Data
<i>Leverage</i>	The value of long-term debt (DLTT), scaled by total assets (AT) as reported in Compustat.	Compustat
<i>Limit382</i>	The basic IRC Section 382 limitation, computed as the average federal long-term tax-exempt interest rate in year t multiplied by the ending market value of equity in year t-1.	CRSP/ Compustat/Hand Collection
<i>Log(At)</i>	The natural logarithm of total assets (AT) plus one.	Compustat
<i>Log(MVE)</i>	The natural logarithm of the market value of equity (as defined in BTM).	CRSP/ Compustat
<i>Loss</i>	Indicator variable equal to one if a firm has negative pre-tax income (PI - SPI), zero otherwise.	Compustat
<i>Negglcf</i>	Equal to sale of property, plant, and equipment and investments (SPPIV), scaled by lagged total assets when SPPIV is less than zero. Zero otherwise.	Compustat
<i>Negglis</i>	Equal to pre-tax income gain/loss, GLP, scaled by lagged total assets when GLP is less than zero. Zero otherwise.	Compustat
<i>Negnop</i>	Equal to non-operating income (NOPI), scaled by lagged total assets when NOPI is less than zero. Zero otherwise.	Compustat
<i>Negspiw</i>	Equal to special items (SPI), scaled by lagged total assets when SPI is less than zero. Zero otherwise.	Compustat

<i>NOLCB</i>	Indicator variable equal to one if a firm had positive federal income tax expense (TXFED) in either t-2 or t-1, zero otherwise.	Compustat
<i>PPE</i>	The value of property, plant, and equipment (PPENT), divided by total assets (AT).	Compustat
<i>PreTaxEarnings</i>	Computed as pre-tax income (PI) less special items (SPI), scaled by lagged total assets.	Compustat
<i>PriorAdopt</i>	Indicator variable equal to one if a firm had a previously active NOL poison pill, zero otherwise.	Hand Collection
<i>PriorAdoptTradPP</i>	Indicator variable equal to one if a firm had a previously active traditional poison pill, zero otherwise.	SDC/ Hand Collection
<i>R&D</i>	Computed as research and development expenses, XRD, scaled by lagged total assets.	Compustat
<i>ROA</i>	Pre-tax return on assets, calculated as pre-tax income (PI - SPI) divided by total assets (AT).	Compustat
<i>Salesgrowth%</i>	Percentage change in sales from t-1 to t, divided by sales in t-1. Set to zero if prior year sales are zero.	Compustat
<i>TLCF_{t-1}</i>	Compustat's tax loss carryforward (TLCF) variable, scaled by total assets (AT), in year t-1. Supplemented with hand collection for NOL poison pill adopting firms. Where supplemented, the value is equal to either a) the reported amount of the NOL carryforward in the tax footnotes of the annual report or b) the imputed amount where the imputed amount is equal to the amount reported in the deferred tax account line item in the tax footnotes of the annual report divided by the maximum federal income tax rate in the year. For the unrestricted sample, remaining missing values of TLCF are set to zero.	Compustat/Hand Collection
<i>TobinsQ</i>	Computed as total assets (AT) less common equity shares (CEQ) plus market value of equity (as defined in BTM) divided by total assets (AT).	CRSP/ Compustat
<i>Turnover</i>	Shareholder turnover, calculated as the total share volume from t-3 to t-1, divided by the average common shares outstanding over the period t-3 to t-1.	CRSP/ Compustat

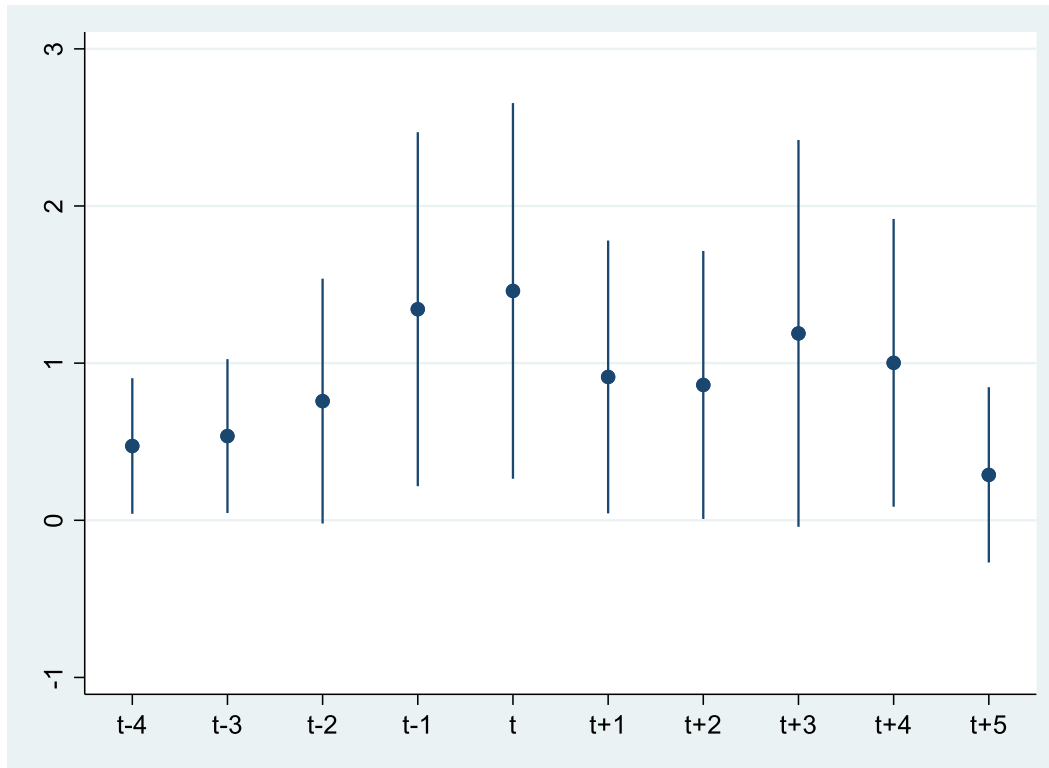


Figure 1: Evolution of TLCF before and after NOL poison pill adoption. This figure depicts the coefficient estimates and 95% confidence intervals from estimating Equation (1), examining the evolution of *TLCF* in the periods surrounding the adoption of an NOL poison pill, relative to other time periods, for the *Unrestricted* sample.

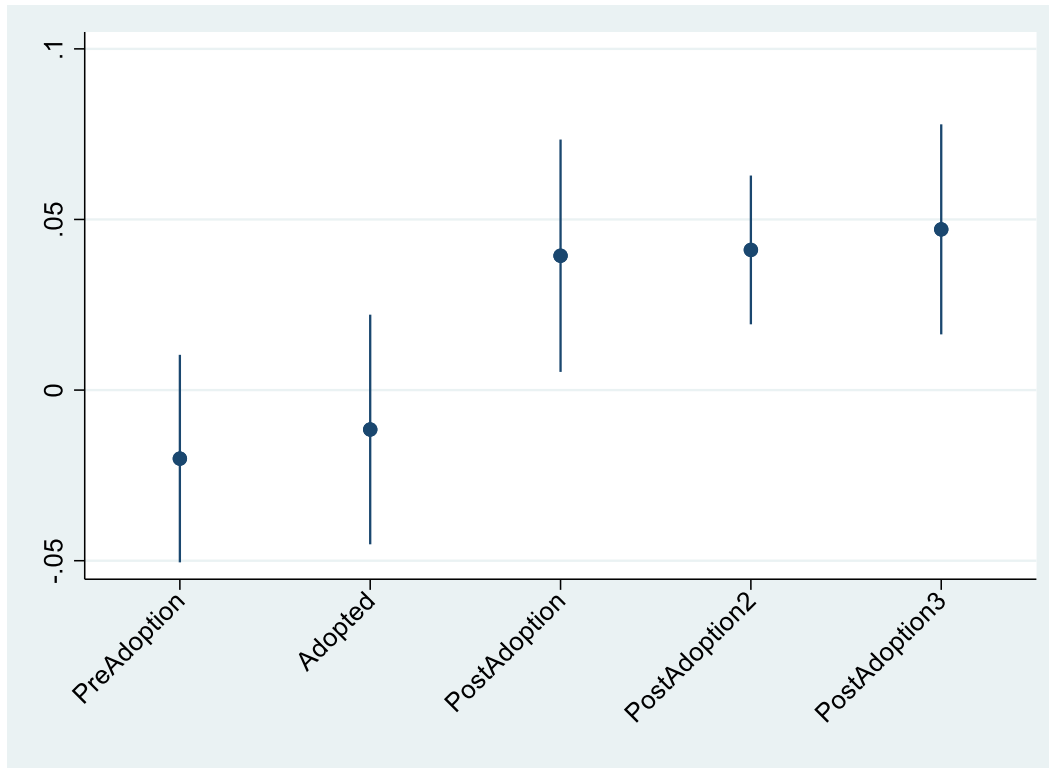


Figure 2: Evolution of PreTax Earnings before and after NOL poison pill adoption: This figure depicts the coefficient estimates and 95% confidence intervals from estimating Equation (4), examining the evolution of *PreTaxEarnings* surrounding the adoption of an NOL poison pill, relative to other time periods, for the *Unrestricted* sample.

Table 1
Sample Selection

Firm-years with non-missing controls 2010 - 2019	26,566
Less: Firm-years with active NOL poison pill adopted prior to 2010	(113)
Less: Firm-years with active NOL poison pill after adoption	(135)
<i>Total Firm-years - Unrestricted Sample</i>	26,318
Less: Firm-years with prior year TLCF = 0	(11,051)
<i>Total Firm-years - Restricted Sample</i>	15,267
Less: Firm-years with prior year TLCF > Limit382	(3,797)
<i>Total Firm-years - Limit382 Sample</i>	11,470

Table 2
Descriptive Statistics

	N	Mean	SD	Min	P25	Median	P75	Max
Determinants								
Model								
Dependent Variable								
Adopted	26,318	0.004	0.062	0.000	0.000	0.000	0.000	1.000
Tax Characteristics								
ChangeTLCF _{t+1}	26,318	0.068	0.325	-0.795	0.000	0.000	0.014	2.079
TLCF _{t-1}	26,318	0.608	1.876	0.000	0.000	0.011	0.202	12.882
NOLCB	26,318	0.776	0.417	0.000	1.000	1.000	1.000	1.000
Limit382	26,318	142.320	420.208	0.217	4.091	19.164	78.865	3,167.793
Governance Characteristics								
BoardTenure	26,318	8.635	4.422	1.000	5.338	8.112	11.210	22.267
CEODuality	26,318	0.400	0.490	0.000	0.000	0.000	1.000	1.000
%IndDirector	26,318	0.836	0.087	0.571	0.800	0.857	0.889	1.000
BoardOwnership	26,318	0.022	0.048	0.000	0.001	0.005	0.017	0.313
Firm Characteristics								
Age	26,318	24.657	16.488	4.000	12.000	20.000	32.000	67.000
Log(At)	26,318	6.823	2.157	2.251	5.362	6.855	8.277	12.138
BTM	26,318	0.624	0.558	-0.675	0.265	0.513	0.848	3.028
Leverage	26,318	0.172	0.197	0.000	0.004	0.105	0.278	0.903
ROA	26,318	-0.006	0.232	-1.278	-0.002	0.035	0.092	0.344
Salesgrowth%	26,318	0.101	0.398	-0.706	-0.037	0.046	0.151	2.744
Acquisition	26,318	0.555	0.497	0.000	0.000	1.000	1.000	1.000
Foreign	26,318	0.503	0.500	0.000	0.000	1.000	1.000	1.000
PriorAdopt	26,318	0.001	0.030	0.000	0.000	0.000	0.000	1.000
PriorAdoptTradPP	26,318	0.214	0.410	0.000	0.000	0.000	0.000	1.000
Turnover	26,318	5.853	5.079	0.193	2.254	4.625	7.757	27.677
IOR	26,318	0.589	0.327	0.000	0.300	0.683	0.874	1.000

Table 2 - continued
Descriptive Statistics

	N	Mean	SD	Min	P25	Median	P75	Max
<i>Future Earnings Outcomes</i>								
<i>Dependent Variables</i>								
<i>PreTaxEarnings_{t+1}</i>	25,747	-0.001	0.230	-1.209	-0.001	0.035	0.097	0.394
<i>Independent Variables</i>								
<i>Adopted</i>	25,747	0.004	0.062	0.000	0.000	0.000	0.000	1.000
<i>Age</i>	25,747	24.784	16.524	4.000	12.000	20.000	32.000	67.000
<i>BigLoss</i>	25,747	0.022	0.147	0.000	0.000	0.000	0.000	1.000
<i>BTM</i>	25,747	0.609	0.548	-0.713	0.259	0.503	0.834	2.963
<i>Cashflow</i>	25,747	0.035	0.195	-0.962	0.013	0.066	0.123	0.389
<i> ChangePretaxEarnings </i>	25,747	0.063	0.134	0.000	0.006	0.020	0.056	0.927
<i>Dividend</i>	25,747	0.477	0.499	0.000	0.000	0.000	1.000	1.000
<i>FirstLoss</i>	25,747	0.049	0.215	0.000	0.000	0.000	0.000	1.000
<i>Log(MVE)</i>	25,747	6.581	2.154	1.977	5.030	6.598	8.054	11.777
<i>Negglcf</i>	25,747	-0.002	0.008	-0.058	-0.001	0.000	0.000	0.000
<i>Negglis</i>	25,747	0.000	0.000	-0.002	0.000	0.000	0.000	0.000
<i>Negnop</i>	25,747	-0.003	0.009	-0.066	-0.002	0.000	0.000	0.000
<i>Negspiw</i>	25,747	-0.013	0.033	-0.223	-0.011	-0.001	0.000	0.000
<i>R&D</i>	25,747	0.053	0.122	0.000	0.000	0.000	0.042	0.718
<i>Salesgrowth%</i>	25,747	0.097	0.334	-0.702	-0.024	0.052	0.152	2.178
<i>PreTaxEarnings_t</i>	25,747	0.003	0.229	-1.188	0.001	0.038	0.100	0.403

Table 2 presents descriptive statistics for the *Unrestricted* sample.

Table 3	
<i>Adoptions by Year</i>	
Fiscal Year	Number of Adoptions
2010	12
2011	11
2012	6
2013	8
2014	8
2015	9
2016	19
2017	11
2018	9
2019	7
Total	100

Table 3 presents the number of NOL poison pill adoptions, by year for the *Unrestricted* sample.

Table 4
Observations by Industry

Industry	Adoption =	
	0	1
1 - Agriculture, Forestry, Fishing, and Mining	1,360	9
2 - Manufacturing	4,399	13
3 - Manufacturing	6,338	23
4 - Transportation, Communication, Electric, Gas, and Sanitary Services	2,138	9
5 - Wholesale Trade	1,995	3
6 - Retail Trade	5,672	23
7 - Finance, Insurance, and Real Estate	3,204	18
8 - Services	1,080	2
9 - Other	32	0
Total	26,218	100

Table 4 presents the number of firm-year observations, by one-digit SIC industry code and by adoption classification.

Table 5
Tests of Difference in Means

Panel A: Unrestricted Sample						
	Adopted = 1		Adopted = 0		Difference	
	N	Mean	N	Mean		
Tax Characteristics						
ChangeTLCF _{t+1}	100	0.184	26,218	0.068	0.117	
TLCF _{t-1}	100	2.209	26,218	0.602	1.607***	
NOLCB	100	0.530	26,218	0.776	-0.246***	
Limit382	100	30.396	26,218	142.747	-112.351***	
Governance Characteristics						
BoardTenure	100	5.972	26,218	8.645	-2.673***	
CEODuality	100	0.290	26,218	0.401	-0.111**	
%IndDirector	100	0.846	26,218	0.836	0.010	
BoardOwnership	100	0.030	26,218	0.022	0.009*	
Firm Characteristics						
Age	100	20.380	26,218	24.673	-4.293***	
Log(At)	100	6.067	26,218	6.826	-0.759***	
BTM	100	0.808	26,218	0.623	0.185**	
Leverage	100	0.224	26,218	0.172	0.052*	
ROA	100	-0.125	26,218	-0.006	-0.119***	
Salesgrowth%	100	0.045	26,218	0.101	-0.056	
Acquisition	100	0.400	26,218	0.556	-0.156***	
Foreign	100	0.380	26,218	0.504	-0.124**	
PriorAdopt	100	0.140	26,218	0.000	0.140***	
PriorAdoptTradPP	100	0.400	26,218	0.214	0.186***	
Turnover	100	7.291	26,218	5.847	1.444**	
IOR	100	0.430	26,218	0.590	-0.160***	

Table 5, continued
Tests of Difference in Means

Panel B: Restricted Sample					
	Adopted = 1		Adopted = 0		Difference
	N	Mean	N	Mean	
Tax Characteristics					
ChangeTLCF _{t+1}	99	0.004	15,168	0.092	-0.088**
TLCF _{t-1}	99	2.358	15,168	1.110	1.247***
NOLCB	99	0.525	15,168	0.684	-0.159***
Limit382	99	30.687	15,168	123.632	-92.945***
Governance Characteristics					
BoardTenure	99	5.912	15,168	8.046	-2.134***
CEODuality	99	0.283	15,168	0.389	-0.106**
%IndDirector	99	0.847	15,168	0.835	0.012
BoardOwnership	99	0.028	15,168	0.021	0.007
Firm Characteristics					
Age	99	20.414	15,168	23.459	-3.045**
Log(At)	99	6.044	15,168	6.530	-0.487**
BTM	99	0.764	15,168	0.535	0.229***
Leverage	99	0.227	15,168	0.196	0.030
ROA	99	-0.130	15,168	-0.051	-0.079**
Salesgrowth%	99	0.070	15,168	0.150	-0.080
Acquisition	99	0.404	15,168	0.602	-0.198***
Foreign	99	0.384	15,168	0.622	-0.238***
PriorAdopt	99	0.141	15,168	0.001	0.141***
PriorAdoptTradPP	99	0.404	15,168	0.229	0.175***
Turnover	99	7.427	15,168	6.732	0.695
IOR	99	0.432	15,168	0.613	-0.181***

Table 5, continued
Tests of Difference in Means

Panel C: Limit382 Sample					
	Adopted = 1		Adopted = 0		Difference
	N	Mean	N	Mean	
Tax Characteristics					
ChangeTLCF _{t+1}	98	-0.002	11,372	0.121	-0.123***
TLCF _{t-1}	98	2.443	11,372	1.509	0.934**
NOLCB	98	0.520	11,372	0.595	-0.074
Limit382	98	29.955	11,372	70.136	-40.182***
Governance Characteristics					
BoardTenure	98	5.887	11,372	7.659	-1.772***
CEODuality	98	0.286	11,372	0.365	-0.080*
%IndDirector	98	0.847	11,372	0.830	0.017**
BoardOwnership	98	0.028	11,372	0.023	0.005
Firm Characteristics					
Age	98	20.469	11,372	22.264	-1.795
Log(At)	98	6.011	11,372	6.143	-0.132
BTM	98	0.776	11,372	0.569	0.207**
Leverage	98	0.230	11,372	0.201	0.029
ROA	98	-0.135	11,372	-0.106	-0.030
Salesgrowth%	98	0.089	11,372	0.187	-0.098
Acquisition	98	0.398	11,372	0.550	-0.152***
Foreign	98	0.388	11,372	0.567	-0.179***
PriorAdopt	98	0.143	11,372	0.001	0.142***
PriorAdoptTradPP	98	0.398	11,372	0.205	0.193***
Turnover	98	7.510	11,372	6.811	0.699
IOR	98	0.427	11,372	0.567	-0.139***

Table 5 presents the results of tests of difference in means between adoption and non-adoption firm-years. Panel A details the results using the *Unrestricted* sample. Panel B details the results using the *Restricted* sample. Panel C details the results using the *Limit382* sample. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests. All variables are defined in Appendix A.

Table 6
Determinants of NOL Poison Pill Adoption

<i>Panel A: Full Sample</i>	(1)		(2)		(3)	
	<i>Adopted</i>		<i>Adopted</i>		<i>Adopted</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>TLCF_{t-1}</i>	0.203***	(0.000)	0.156***	(0.003)	0.150***	(0.004)
<i>ChangeTLCF_{t+1}</i>	-0.781***	(0.002)	-0.767***	(0.002)	-0.743***	(0.003)
<i>NOLCB</i>	-0.443*	(0.085)	-0.179	(0.473)	-0.060	(0.804)
<i>Limit382</i>	-0.002	(0.458)	-0.003	(0.394)	-0.002	(0.430)
<i>CEODuality</i>	-0.160	(0.507)	-0.238	(0.340)	-0.162	(0.517)
<i>%IndDirector</i>	1.702	(0.254)	2.251	(0.121)	2.525*	(0.086)
<i>BoardTenure</i>	-0.155***	(0.000)	-0.139***	(0.001)	-0.131***	(0.002)
<i>BoardOwnership</i>	2.967	(0.123)	2.494	(0.190)	2.190	(0.255)
<i>Log(At)</i>	-0.029	(0.806)	0.047	(0.695)	0.025	(0.816)
<i>Salesgrowth%</i>	-0.209	(0.448)	-0.259	(0.315)	-0.240	(0.338)
<i>BTM</i>	0.548***	(0.002)	0.488***	(0.007)	0.446**	(0.012)
<i>Leverage</i>	1.802***	(0.001)	1.046*	(0.056)	1.034*	(0.054)
<i>Age</i>	-0.006	(0.482)	-0.001	(0.861)	-0.002	(0.767)
<i>ROA</i>	0.208	(0.715)	0.064	(0.912)	0.175	(0.762)
<i>Acquisition</i>	-0.054	(0.842)	-0.181	(0.502)	-0.184	(0.495)
<i>Foreign</i>	-0.244	(0.382)	-0.614**	(0.022)	-0.556**	(0.039)
<i>IOR</i>	-0.746*	(0.082)	-0.906**	(0.021)	-0.798**	(0.043)
<i>Turnover</i>	0.040**	(0.028)	0.025	(0.154)	0.023	(0.195)
<i>PriorAdopt</i>	6.180***	(0.000)	5.716***	(0.000)	5.589***	(0.000)
<i>PriorAdoptTradPP</i>	1.516***	(0.000)	1.320***	(0.000)	1.277***	(0.000)
<i>Constant</i>	-6.280***	(0.000)	-6.248***	(0.000)	-6.260***	(0.000)
Observations	26,286		15,255		11,483	
Year FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Pseudo R2	0.244		0.247		0.231	
ROC	0.880		0.879		0.862	

Table 6, continued
Determinants of NOL Poison Pill Adoption

<i>Panel B: Domestic Firms</i>	(1)		(2)		(3)	
	<i>Adopted</i>		<i>Adopted</i>		<i>Adopted</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>TLCF_{t-1}</i>	0.224***	(0.000)	0.164***	(0.008)	0.158**	(0.011)
<i>ChangeTLCF_{t+1}</i>	-0.666***	(0.010)	-0.630**	(0.014)	-0.630**	(0.013)
<i>NOLCB</i>	-0.359	(0.295)	0.079	(0.806)	0.163	(0.607)
<i>Limit382</i>	-0.027	(0.113)	-0.031*	(0.072)	-0.033*	(0.100)
<i>CEODuality</i>	-0.086	(0.792)	-0.203	(0.545)	-0.105	(0.755)
<i>%IndDirector</i>	3.075*	(0.055)	4.208***	(0.009)	4.460***	(0.007)
<i>BoardOwnership</i>	3.728	(0.130)	3.158	(0.203)	2.888	(0.247)
<i>BoardTenure</i>	-0.164***	(0.000)	-0.135***	(0.002)	-0.130***	(0.003)
<i>Log(At)</i>	0.095	(0.559)	0.198	(0.178)	0.181	(0.230)
<i>Salesgrowth%</i>	-0.176	(0.557)	-0.177	(0.495)	-0.150	(0.546)
<i>BTM</i>	0.492**	(0.046)	0.393	(0.116)	0.360	(0.146)
<i>Leverage</i>	2.283***	(0.000)	1.039	(0.113)	1.082	(0.104)
<i>Age</i>	0.012	(0.294)	0.007	(0.479)	0.006	(0.544)
<i>Acquisition</i>	0.423	(0.158)	0.332	(0.266)	0.295	(0.337)
<i>ROA</i>	0.739	(0.240)	0.494	(0.433)	0.633	(0.321)
<i>IOR</i>	-0.028	(0.964)	-0.270	(0.628)	-0.081	(0.893)
<i>Turnover</i>	0.041**	(0.038)	0.021	(0.254)	0.021	(0.256)
<i>PriorAdopt</i>	6.392***	(0.000)	6.021***	(0.000)	5.859***	(0.000)
<i>PriorAdoptTradPP</i>	1.473***	(0.000)	1.144***	(0.000)	1.029***	(0.001)
<i>Constant</i>	-8.230***	(0.000)	-8.506***	(0.000)	-8.504***	(0.000)
Observations	13,065		5,797		4,981	
Year FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Pseudo R2	0.260		0.264		0.262	
ROC	0.884		0.876		0.872	

Table 6, continued
Determinants of NOL Poison Pill Adoption

<i>Panel C: First-Adopters</i>	(1)		(2)		(3)	
	<i>Adopted</i>		<i>Adopted</i>		<i>Adopted</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>TLCF_{t-1}</i>	0.197***	(0.000)	0.147***	(0.007)	0.141***	(0.008)
<i>ChangeTLCF_{t+1}</i>	-0.793***	(0.002)	-0.778***	(0.002)	-0.753***	(0.003)
<i>NOLCB</i>	-0.406	(0.129)	-0.086	(0.742)	0.041	(0.872)
<i>Limit382</i>	-0.002	(0.456)	-0.002	(0.383)	-0.002	(0.408)
<i>CEODuality</i>	-0.091	(0.717)	-0.153	(0.545)	-0.072	(0.776)
<i>%IndDirector</i>	1.961	(0.203)	2.620*	(0.081)	2.946*	(0.053)
<i>BoardTenure</i>	-0.144***	(0.001)	-0.124***	(0.002)	-0.115***	(0.005)
<i>BoardOwnership</i>	2.380	(0.230)	1.823	(0.343)	1.517	(0.435)
<i>Log(At)</i>	-0.035	(0.772)	0.045	(0.712)	0.024	(0.824)
<i>Salesgrowth%</i>	-0.201	(0.467)	-0.251	(0.331)	-0.230	(0.359)
<i>BTM</i>	0.603***	(0.001)	0.553***	(0.003)	0.504***	(0.006)
<i>Leverage</i>	1.826***	(0.000)	0.999*	(0.070)	0.986*	(0.069)
<i>Age</i>	-0.010	(0.240)	-0.007	(0.391)	-0.008	(0.325)
<i>ROA</i>	0.119	(0.839)	-0.064	(0.914)	0.049	(0.935)
<i>Acquisition</i>	-0.047	(0.867)	-0.198	(0.475)	-0.200	(0.471)
<i>Foreign</i>	-0.136	(0.670)	-0.510*	(0.079)	-0.451	(0.121)
<i>IOR</i>	-0.895**	(0.040)	-1.115***	(0.005)	-1.014**	(0.011)
<i>Turnover</i>	0.036*	(0.062)	0.019	(0.306)	0.016	(0.375)
<i>PriorAdoptTradPP</i>	1.573***	(0.000)	1.368***	(0.000)	1.326***	(0.000)
<i>Constant</i>	-6.598***	(0.000)	-6.634***	(0.000)	-6.691***	(0.000)
Observations	26,262		15,231		11,459	
Year FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Pseudo R2	0.162		0.172		0.156	
ROC	0.863		0.862		0.842	

Table 6 presents results of estimating Equation (2). Panel A shows the results using all firm-year observations of each sample. Panel B shows the results using firm-year observations for domestic-only firms. Panel C shows the results using first time adopter firm-years. In all panels, Columns 1, 2, and 3 show the results for the *Unrestricted*, *Restricted*, and *Limit382* samples, respectively. One-digit SIC industry and year fixed effects are used, and standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests. All variables are defined in Appendix A.

Table 7*Determinants of NOL Poison Pill Adoption - Institutional Ownership Types*

Panel A: Full Sample						
DV = <i>Adopted</i>	(1)		(2)		(3)	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>Dedicated IOR</i>	3.632***	(0.008)	2.612**	(0.047)	2.601*	(0.050)
<i>Quasi-Indexer IOR</i>	-2.442***	(0.003)	-2.311***	(0.003)	-2.136***	(0.007)
<i>Transitory IOR</i>	0.458	(0.758)	0.066	(0.964)	0.015	(0.992)
Observations	26,286		15,255		11,483	
Controls	Yes		Yes		Yes	
Year & Industry FE	Yes		Yes		Yes	
Pseudo R2	0.256		0.257		0.240	
ROC	0.887		0.884		0.867	
Panel B: Domestic Firms						
DV = <i>Adopted</i>	(1)		(2)		(3)	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>Dedicated IOR</i>	4.217**	(0.016)	2.627	(0.134)	2.741	(0.134)
<i>Quasi-Indexer IOR</i>	-0.655	(0.506)	-0.547	(0.561)	-0.300	(0.767)
<i>Transitory IOR</i>	0.071	(0.969)	-0.467	(0.790)	-0.343	(0.843)
Observations	13,065		5,797		4,981	
Controls	Yes		Yes		Yes	
Year & Industry FE	Yes		Yes		Yes	
Pseudo R2	0.266		0.267		0.265	
ROC	0.884		0.875		0.871	
Panel C: First-Adopters						
DV = <i>Adopted</i>	(1)		(2)		(3)	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>Dedicated IOR</i>	3.744***	(0.008)	2.637*	(0.058)	2.603*	(0.066)
<i>Quasi-Indexer IOR</i>	-2.849***	(0.001)	-2.758***	(0.000)	-2.610***	(0.001)
<i>Transitory IOR</i>	0.631	(0.683)	0.191	(0.899)	0.154	(0.918)
Observations	26,262		15,231		11,459	
Controls	Yes		Yes		Yes	
Year & Industry FE	Yes		Yes		Yes	
Pseudo R2	0.177		0.185		0.168	
ROC	0.869		0.867		0.847	

Table 7 presents the results of different institutional ownership types. Panel A re-estimates Equation (2) using *Dedicated IOR*, *Quasi-Indexer IOR*, and *Transitory IOR* for all firm-year observations. Panel B presents results

estimated using the modifications to Equation (2) for all domestic-only firms. Panel C shows the results using firm-year observations for first-time adopter firm-years. In all panels, Columns 1, 2, and 3 show the results for the *Unrestricted*, *Restricted*, and *Limit382* samples, respectively. One-digit SIC industry and year fixed-effects are used, and standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests.

Table 8
Moderating Impact of Governance

<i>Panel A: All Firms, Continuous</i>	(1)		(2)		(3)	
	<i>Adopted</i>		<i>Adopted</i>		<i>Adopted</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
$TLCF_{t-1}$	0.199***	(0.000)	0.153***	(0.003)	0.147***	(0.003)
$ChangeTLCF_{t+1}$	-0.775***	(0.002)	-0.752***	(0.002)	-0.723***	(0.003)
<i>Governance</i>	0.346***	(0.007)	0.368***	(0.002)	0.355***	(0.002)
Observations	26,286		15,255		11,483	
Controls	Yes		Yes		Yes	
Industry & Year FEs	Yes		Yes		Yes	
Pseudo R2	0.229		0.235		0.220	
ROC	0.868		0.871		0.854	
<i>Panel B: All Firms, Interactions</i>	(1)		(2)		(3)	
	<i>Adopted</i>		<i>Adopted</i>		<i>Adopted</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
$TLCF_{t-1}$	0.210***	(0.001)	0.168***	(0.008)	0.154**	(0.016)
$ChangeTLCF_{t+1}$	-0.600	(0.170)	-0.587	(0.166)	-0.542	(0.194)
<i>StrongGov</i>	0.699***	(0.006)	0.728***	(0.005)	0.609**	(0.017)
$StrongGov * TLCF_{t-1}$	-0.007	(0.896)	-0.014	(0.796)	-0.001	(0.989)
$StrongGov * ChangeTLCF_{t+1}$	-0.268	(0.616)	-0.265	(0.617)	-0.302	(0.564)
Observations	26,286		15,255		11,483	
Controls	Yes		Yes		Yes	
Industry & Year FEs	Yes		Yes		Yes	
Pseudo R2	0.228		0.232		0.216	
$TLCF + StrongGov * TLCF = 0$	0.000		0.003		0.003	
$ChangeTLCF + StrongGov * ChangeTLCF = 0$	0.004		0.006		0.005	
ROC	0.867		0.867		0.849	

Table 8, continued
Moderating Impact of Governance

<i>Panel C: Domestic Firms</i>	(1)		(2)		(3)	
	<i>Adopted</i>		<i>Adopted</i>		<i>Adopted</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
$TLCF_{t-1}$	0.249***	(0.003)	0.201**	(0.018)	0.185**	(0.037)
$ChangeTLCF_{t+1}$	-0.570*	(0.062)	-0.604*	(0.059)	-0.521	(0.116)
<i>StrongGov</i>	0.897***	(0.007)	0.972***	(0.004)	0.830**	(0.012)
$StrongGov*TLCF_{t-1}$	-0.025	(0.726)	-0.039	(0.600)	-0.023	(0.767)
$StrongGov*ChangeTLCF_{t+1}$	-0.074	(0.881)	-0.010	(0.984)	-0.144	(0.781)
Observations	13,065		5,797		4,981	
Controls	Yes		Yes		Yes	
Industry & Year FEs	Yes		Yes		Yes	
Pseudo R2	0.239		0.245		0.241	
$TLCF + StrongGov*TLCF = 0$	0.000		0.010		0.010	
$ChangeTLCF + StrongGov*ChangeTLCF = 0$	0.077		0.091		0.069	
ROC	0.869		0.865		0.858	
<i>Panel D: First-Adopters</i>	(1)		(2)		(3)	
	<i>Adopted</i>		<i>Adopted</i>		<i>Adopted</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
$TLCF_{t-1}$	0.201***	(0.002)	0.155**	(0.019)	0.143**	(0.032)
$ChangeTLCF_{t+1}$	-0.658	(0.148)	-0.637	(0.145)	-0.586	(0.175)
<i>StrongGov</i>	0.650**	(0.013)	0.664**	(0.012)	0.586**	(0.026)
$StrongGov*TLCF_{t-1}$	-0.000	(0.996)	-0.006	(0.913)	0.003	(0.955)
$StrongGov*ChangeTLCF_{t+1}$	-0.201	(0.712)	-0.206	(0.700)	-0.248	(0.640)
Observations	26,262		15,231		11,459	
Controls	Yes		Yes		Yes	
Industry & Year FEs	Yes		Yes		Yes	
Pseudo R2	0.146		0.158		0.142	
$TLCF + StrongGov*TLCF = 0$	0.000		0.007		0.007	
$ChangeTLCF + StrongGov*ChangeTLCF = 0$	0.004		0.006		0.006	
ROC	0.848		0.849		0.828	

Table 8 presents the results of the moderating impact of governance characteristics. Panel A re-estimates Equation (2) using the first principal component, *Governance*. Panel B presents results estimating using the modifications to Equation (2) for all firm-year observations. Panel C shows the results using firm-year observations for domestic-only firms. Panel D shows the results using firm-year observations for first-time adopter firm-years. In all panels, Columns 1, 2, and 3 show the results for the *Unrestricted*, *Restricted*, and *Limit382* samples, respectively. One-digit SIC industry and year fixed-effects are used, and standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests. All variables are defined in Appendix A.

Table 9

Comparing NOL Poison Pill Adoption and Traditional Poison Pill Adoption

	(1)				(2)				(3)			
	<i>Adopted</i>		<i>TradAdopt</i>		<i>Adopted</i>		<i>TradAdopt</i>		<i>Adopted</i>		<i>TradAdopt</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>TLCF_{t-1}</i>	0.218***	(0.000)	-0.046	(0.360)	0.167***	(0.001)	-0.039	(0.497)	0.160***	(0.001)	-0.042	(0.444)
<i>ChangeTLCF_{t+1}</i>	-0.708***	(0.004)	-0.197	(0.383)	-0.692***	(0.005)	-0.240	(0.407)	-0.668***	(0.006)	-0.228	(0.443)
<i>NOLCB</i>	-0.417	(0.125)	-0.020	(0.916)	-0.102	(0.686)	0.019	(0.933)	0.023	(0.925)	0.062	(0.792)
<i>Limit382</i>	-0.003	(0.450)	-0.000	(0.446)	-0.003	(0.425)	-0.000	(0.444)	-0.002	(0.499)	-0.000	(0.584)
<i>CEODuality</i>	-0.164	(0.516)	0.105	(0.521)	-0.236	(0.354)	0.160	(0.443)	-0.177	(0.491)	0.116	(0.635)
<i>%IndDirector</i>	1.370	(0.368)	-0.038	(0.971)	2.012	(0.175)	-0.463	(0.717)	2.239	(0.133)	-0.584	(0.662)
<i>BoardTenure</i>	-0.152***	(0.000)	-0.037*	(0.076)	-0.133***	(0.001)	-0.027	(0.327)	-0.123***	(0.002)	-0.010	(0.739)
<i>BoardOwnership</i>	3.395*	(0.075)	3.492***	(0.002)	2.903	(0.128)	4.377***	(0.001)	2.701	(0.162)	3.774***	(0.009)
<i>Log(At)</i>	0.084	(0.500)	-0.428***	(0.000)	0.162	(0.204)	-0.372***	(0.000)	0.144	(0.211)	-0.352***	(0.002)
<i>Salesgrowth%</i>	-0.181	(0.515)	0.206	(0.176)	-0.234	(0.383)	0.170	(0.362)	-0.212	(0.416)	0.197	(0.312)
<i>BTM</i>	0.381**	(0.027)	0.563***	(0.000)	0.292	(0.106)	0.499***	(0.001)	0.254	(0.146)	0.491***	(0.002)
<i>Leverage</i>	1.831***	(0.000)	1.565***	(0.000)	0.991*	(0.071)	1.346**	(0.013)	0.952*	(0.078)	1.097*	(0.076)
<i>Age</i>	0.002	(0.775)	-0.019***	(0.004)	0.003	(0.628)	-0.019**	(0.019)	0.002	(0.823)	-0.024**	(0.024)
<i>ROA</i>	-0.007	(0.990)	-0.542	(0.126)	-0.200	(0.713)	-0.619	(0.153)	-0.109	(0.842)	-0.845*	(0.067)
<i>Acquisition</i>	-0.002	(0.995)	-0.094	(0.582)	-0.137	(0.618)	-0.310	(0.127)	-0.148	(0.589)	-0.122	(0.584)
<i>Foreign</i>	-0.220	(0.445)	0.263	(0.165)	-0.676**	(0.014)	0.251	(0.294)	-0.645**	(0.019)	0.249	(0.363)
<i>IOR</i>	-0.895**	(0.043)	-0.197	(0.497)	-1.024***	(0.010)	-0.306	(0.392)	-0.930**	(0.019)	-0.452	(0.255)
<i>Turnover</i>	0.048**	(0.012)	0.033**	(0.016)	0.030	(0.105)	0.025	(0.135)	0.027	(0.134)	0.013	(0.507)
<i>PriorAdopt</i>	6.056***	(0.000)	4.011***	(0.000)	5.507***	(0.000)	4.192***	(0.000)	5.377***	(0.000)	4.266***	(0.000)
<i>Constant</i>	-6.017***	(0.000)	-5.196***	(0.000)	-6.070***	(0.000)	-5.158***	(0.000)	-6.056***	(0.000)	-5.257***	(0.001)

Table 9, continued
Comparing NOL Poison Pill Adoption and Traditional Poison Pill Adoption

Observations	24,533	25,458	14,133	14,454	10,568	10,737
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.221	0.280	0.232	0.288	0.217	0.311
ROC	0.866	0.902	0.873	0.905	0.855	0.909

Table 9 presents the results of comparing NOL poison pill and traditional poison pill adoptions. Columns 1, 2, and 3 show the results for the *Unrestricted*, *Restricted*, and *Limit382* samples, respectively. NOL poison pill adoptions are on the left and traditional poison pill adoptions are on the right. One-digit SIC industry and year fixed-effects are used, and standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests. All variables are defined in Appendix A.

Table 10
NOL poison pill adoption and future earnings outcomes

	(1)		(2)		(3)	
	<i>PreTaxEarnings_{t+1}</i>		<i>PreTaxEarnings_{t+1}</i>		<i>PreTaxEarnings_{t+1}</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>Adopted</i>	0.053**	0.012	0.055***	0.009	0.057***	0.009
<i>PretaxEarnings</i>	0.255***	0.000	0.188***	0.000	0.168***	0.000
<i>Cashflow</i>	0.149***	0.000	0.168***	0.000	0.172***	0.000
<i> ChangePretaxEarnings </i>	0.011	0.605	0.005	0.836	0.003	0.913
<i>Negspiw</i>	0.046	0.230	0.018	0.708	-0.005	0.932
<i>Negnop</i>	-1.199***	0.000	-1.282***	0.000	-1.332***	0.000
<i>Negglis</i>	0.512	0.903	-1.365	0.791	-1.022	0.873
<i>Negglcf</i>	0.023	0.871	-0.003	0.986	-0.040	0.862
<i>Salesgrowth%</i>	-0.001	0.882	-0.006	0.329	-0.006	0.368
<i>Age</i>	-0.000	0.980	0.004	0.535	0.003	0.648
<i>R&D</i>	-0.078	0.114	-0.087	0.111	-0.092	0.102
<i>Log(MVE)</i>	0.026***	0.000	0.034***	0.000	0.039***	0.000
<i>BTM</i>	-0.006	0.193	0.002	0.751	0.007	0.344
<i>FirstLoss</i>	-0.017***	0.000	-0.023***	0.000	-0.024***	0.000
<i>BigLoss</i>	0.104***	0.000	0.081***	0.002	0.071***	0.008
<i>Dividend</i>	0.002	0.596	0.001	0.889	0.001	0.844
<i>Constant</i>	-0.150*	0.059	-0.297***	0.006	-0.338***	0.009
Observations	25,747		14,870		11,147	
Adjusted R-squared	0.149		0.126		0.116	
Year FE	Yes		Yes		Yes	
Firm FE	Yes		Yes		Yes	

Table 10 presents the results of estimating Equation (3). Column 1 shows the results of *PreTaxEarnings* on *Adopted* and control variables for the *Unrestricted* sample. Column 2 shows the results of *PreTaxEarnings* on *Adopted* and control variables for the *Restricted* sample. Column 3 shows the results of *PreTaxEarnings* on *Adopted* and control variables for the *Limit382* sample. Firm and year fixed effects are used, and standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests. All variables are defined in Appendix A.

Table 11
Earnings Relative to NOL Poison Pill Adoption Timing

	(1)		(2)		(3)	
	<i>PreTaxEarnings_t</i>		<i>PreTaxEarnings_t</i>		<i>PreTaxEarnings_t</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>PreAdoption</i>	-0.020	0.196	-0.009	0.608	-0.007	0.677
<i>Adopted</i>	-0.012	0.501	-0.002	0.912	-0.001	0.968
<i>PostAdoption</i>	0.039**	0.023	0.047***	0.007	0.046***	0.009
<i>PostAdoption2</i>	0.041***	0.000	0.050***	0.000	0.051***	0.000
<i>PostAdoption3</i>	0.047***	0.003	0.051***	0.002	0.051***	0.003
Observations	37,712		21,292		16,082	
Adjusted R-squared	0.156		0.133		0.124	
Controls	Yes		Yes		Yes	
Firm & Year FE	Yes		Yes		Yes	

Table 11 presents the results of estimating Equation (4). Column 1 presents results for the *Unrestricted* sample. Column 2 presents results for the *Restricted* sample and Column 3 presents results for the *Limit382* sample. Firm and year fixed effects are used, and standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests. All variables are defined in Appendix A

Table 12

Determinants of NOL Poison Pill Adoption: Future PreTax Earnings Income(Loss) Partitions

<i>DV = Adopted</i>	(1)				(2)				(3)			
<i>Partition:</i>	<i>Loss</i>		<i>Income</i>		<i>Loss</i>		<i>Income</i>		<i>Loss</i>		<i>Income</i>	
	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
<i>TLCF_{t-1}</i>	0.235***	(0.000)	0.244***	(0.001)	0.202***	(0.002)	0.175**	(0.025)	0.202***	(0.002)	0.164**	(0.032)
<i>ChangeTLCF_{t+1}</i>	-0.586**	(0.039)	-1.473*	(0.077)	-0.607**	(0.031)	-1.087	(0.150)	-0.614**	(0.030)	-1.006	(0.158)
<i>NOLCB</i>	-0.204	(0.509)	-0.280	(0.529)	-0.100	(0.742)	-0.034	(0.938)	-0.025	(0.932)	0.084	(0.842)
<i>Limit382</i>	-0.006	(0.311)	-0.001	(0.586)	-0.005	(0.310)	-0.001	(0.484)	-0.005	(0.297)	-0.001	(0.564)
<i>CEODuality</i>	-0.097	(0.780)	-0.059	(0.872)	-0.143	(0.690)	-0.271	(0.505)	-0.122	(0.735)	-0.114	(0.781)
<i>%IndDirector</i>	1.857	(0.324)	2.934	(0.231)	1.778	(0.329)	4.453*	(0.071)	1.926	(0.290)	5.224**	(0.041)
<i>BoardTenure</i>	-0.121**	(0.032)	-0.153**	(0.015)	-0.124**	(0.032)	-0.131**	(0.043)	-0.126**	(0.032)	-0.124*	(0.056)
<i>BoardOwnership</i>	2.682	(0.232)	4.712	(0.154)	2.596	(0.240)	3.452	(0.326)	2.567	(0.249)	2.875	(0.419)
<i>Log(At)</i>	0.182	(0.247)	-0.094	(0.600)	0.197	(0.223)	-0.028	(0.869)	0.202	(0.202)	-0.041	(0.809)
<i>Salesgrowth%</i>	-0.071	(0.789)	-1.301	(0.209)	-0.107	(0.685)	-1.111	(0.185)	-0.091	(0.724)	-1.082	(0.186)
<i>BTM</i>	0.180	(0.453)	0.920***	(0.000)	0.220	(0.357)	0.828***	(0.003)	0.221	(0.345)	0.751***	(0.008)
<i>Leverage</i>	1.483**	(0.016)	0.823	(0.491)	1.228*	(0.062)	0.142	(0.902)	1.191*	(0.070)	0.131	(0.911)
<i>Age</i>	0.004	(0.750)	-0.016	(0.185)	0.008	(0.459)	-0.011	(0.363)	0.007	(0.489)	-0.012	(0.314)
<i>ROA</i>	0.343	(0.680)	-0.211	(0.801)	0.244	(0.772)	-0.455	(0.586)	0.256	(0.762)	-0.264	(0.747)
<i>Acquisition</i>	0.113	(0.749)	-0.022	(0.961)	-0.022	(0.949)	-0.198	(0.658)	-0.037	(0.915)	-0.225	(0.616)
<i>Foreign</i>	-0.134	(0.704)	-0.984**	(0.015)	-0.277	(0.436)	-1.262***	(0.001)	-0.268	(0.454)	-1.193***	(0.002)
<i>IOR</i>	-0.396	(0.447)	-1.115	(0.144)	-0.384	(0.467)	-1.489**	(0.016)	-0.272	(0.604)	-1.448**	(0.029)
<i>Turnover</i>	0.022	(0.325)	0.071*	(0.051)	0.019	(0.392)	0.044	(0.213)	0.018	(0.404)	0.037	(0.308)
<i>PriorAdopt</i>	5.992***	(0.000)	6.396***	(0.000)	5.733***	(0.000)	5.881***	(0.000)	5.680***	(0.000)	5.676***	(0.000)
<i>PriorAdoptTradPP</i>	1.045***	(0.004)	2.379***	(0.000)	0.970***	(0.007)	2.097***	(0.000)	0.941***	(0.010)	2.039***	(0.000)
<i>Constant</i>	-7.416***	(0.000)	-8.066***	(0.001)	-6.764***	(0.000)	-8.515***	(0.001)	-6.906***	(0.000)	-8.817***	(0.000)

Table 12, continued

Observations	6,304	17,583	5,049	8,849	4,776	5,826
Year & Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.242	0.298	0.249	0.319	0.250	0.303
ROC	0.856	0.915	0.857	0.921	0.856	0.908

Table 12 presents the results of re-estimating Equation (2) splitting on future pretax income and loss. Column 1 presents results for the *Unrestricted* sample. Column 2 presents results for the *Restricted* sample and Column 3 presents results for the *Limit382* sample. Loss firm year observations are on the left and income firm-year observations are on the right. Firm and year fixed effects are used, and standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance levels, respectively, using two-sided tests. All variables are defined in Appendix A

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