Essays on Creditor Rights Protection, Corporate Debt and Corporate Liability

DANIEL TUT

A DISSERTATION SUBMITTED TO

THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

GRADUATE PROGRAM IN BUSINESS ADMINISTRATION

YORK UNIVERSITY

TORONTO, ONTARIO

March, 2020

Abstract:

This dissertation examines how information asymmetry and bankruptcy costs magnify the conflict between creditors and borrowers. And the conflict between creditors and managers. The central idea of this dissertation is that in order for credit to be extended there has to be some effective mechanisms in place. These mechanisms would ensure that creditors can recoup their claims even in the case of bankruptcy. Examples of such mechanisms would be legal reforms, such reforms would facilitate enforceability of contracts and minimize conflict amongst contractual parties. In order to understand how these conflicts arise and to quantify their welfare implications, this dissertation exploits changes in institutional settings, laws, legal reforms and differential in corporate governance structure.

Chapter 1 of the dissertation entitled *"Creditor Rights, Debt Capacity and Securities Issuance: Evidence from Anti-recharacterization Laws"*, examines the effects of improvement in creditors' rights protection on firms' financing choices and securities issuance. Extant literature in finance has focused mostly on cross-country differential in creditors' rights protection, yet even if two countries pass the exact legislation, there could potentially exist significant differences in the level of enforcement and exemption provisions. Such differences might lead to distortions and limit the contractual flexibility induced by stronger creditors' rights protection. For example, strong pro-creditors laws might lead to

premature liquidation. As a result, cross-countries studies on creditors' rights protection have yield contrasting results. In this paper, I exploit a plausibly within country exogenous variation in creditors' rights protection- namely the passage of anti-recharacterization Laws by seven U.S states- The laws enhance the ability of creditors to repossess collateral during bankruptcy. Using a difference-in-difference methodology to estimate the causal impacts; I find that: [1] the laws are positively related to debt capacity and debt maturity. Firms increase market leverage and substitute away from costly short-term debt financing into long-term debt financing, [2] the laws are positively related to debt issuance, [3] The laws are negatively related to equity issuance. My analysis further demonstrates that proactive securities issuers are significantly more responsive to the adoption of anti-recharacterization laws than passive securities issuers.

Standard economic anaylsis in corporate finance literature has not succeeded in explaining the observed heterogeneity in capital structure and leverage changes[1]. This is partly because research has treated firm debt as a single entity. However, understanding when and why firms issue different types of debt instrument would provide an important insight into the functioning of credit markets. My goal in Chapter 2 is to understand how a manager's choice of debt instrument affects changes in capital structure and magnify the conflict between creditors and

[1] Graham and Leary 2011

managers. I am particularly interested in addressing the following questions: What explains debt heterogeneity? Why do some firms borrow from only a few creditors while others borrow from multiple creditors? And why do some firms display a more disperse capital structure while others have a more concentrated debt structure? Is the choice of the source of debt financing and debt instrument a function of corporate governance? My results suggest that entrenched managers exploit the coordination failure among multiple creditors. Underlining these results is the assumption that managers are self-interested and that monitoring is costly for creditors. Borrowing from multiple creditors and having a disperse debt structure increases the marginal cost of monitoring for each creditor. As a result, entrenched managers opportunistically exploit free riding problem amongst multiple creditors and are thus incentivized to undertake inefficient actions. Overall, my results suggest that creditors (market lenders) can use debt specialization as a form of commitment device that transfers some control rights from managers to creditors. A key insight in this chapter is that examining only the level of debt results in an iceberg problem; in the sense that we can observe and only account for changes in the firm total debt level but not changes within the debt structure and how these changes might be due to managerial entrenchment.

Under the pecking order theory firms should first utilize cash over other sources of external financing. As a result, firms' cash holdings

decisions directly affect when firms access credit markets. It is, therefore, important to explore factors and conditions that lead to cash (de)accumulation.To this extent, Chapter 3 is motivated by two outstanding questions in the extant literature. The first question regards factors that explain the documented recent rise in cash holdings amongst U.S firms. And the second question regards factors that explain the slow speed of adjustment of cash towards target. In this chapter, I examine whether policy uncertainty- political and regulatory uncertainty- can address these questions. Policy uncertainty creates a wedge between the benefit(s) of current period liquid assets and costly external financing in future states. To this extent, policy uncertainty serves as a source of adjustment costs and affects the dynamics between internal financing and external financing. Firms respond to significant policy uncertainty shocks by hoarding cash and decelerating speed of adjustment toward target. The results demonstrate that there is heterogeneity in how firms respond to policy uncertainty shocks, firms that operate below target cash tend to accelerate speed of adjustment while firms that operate above target cash tend to decelerate speed of adjustment. Effectively, firms that are a long way from target cash rebalance at a faster rate when policy induced adjustment costs are significant. The overall effect is that policy uncertainty induces firms not only to significantly increase cash holdings, but to also decelerate speed of adjustment toward target. The results show that there is an inverse relationship between policy uncertainty and

speed of adjustment of cash. This is because in the face of policy uncertainty shocks, firms optimally deviate from target cash as the expected benefit of deviation is greater than the expected value of approaching the target.

Dedication:

This dissertation is dedicated to:

My loving parents: P. Tut Pur & M. Nyabel Mut,

My beautiful ,smart, ethical and supportive siblings,

And to Akobo- a source of infinite inspiration,

And for indelible memories,

Men and women who made the ultimate sacrifice,

So that the next generations can have the opportunities to pursue their dreams,

Thank you for your sacrifice!!

Declaration:

I hereby declare that this dissertation titled "Essays on Creditor Rights Protection, Corporate Debt and Corporate Liability" and the work presented in it are my own. This work was done wholly while in candidature for a Doctoral degree at the Schulich School of Business- York University, Canada. Where published works or academic work of others has been consulted, I have clearly attributed and indicated the source(s).

Acknowledgements:

I would like to express my sincere gratitude to the members of my dissertation committee. I want to thank my advisors: Ambrus Kecskés, whom I owe a large intellectual debt, for his support, guidance and valuable feeback. I also want to thank Yelena Larkin for providing insightful comments, advice, training on how to conduct research in Corporate Finance and for being an invaluable resource throughout this dissertation. I want to thank Melanie Cao for her guidance, feedback, commitment and instrumental role in shaping me into a scholar and a critical thinker. I want to thank Moshe A. Milevsky for being a constant source of support, encouragement, wisdom, friendship and for his unwavering belief in me.

I would like to thank Peter Cziraki (External Examiner) and George Georgopolous (Internal Examiner) for carefully reading this dissertation and providing very invaluable insight and feedback that has substantially improved the dissertation.

I would like to thank Vanya B. Ilieva for carefully reading the manuscript and for making important suggestions that greatly improved this dissertation. Thank you for your support!!

I am also grateful to the Schulich School of Business finance faculty for their support and guidance over the last five years. Finally, I wish to thank the following individual for providing valuable feedback in each of the

chapters:

In Chapter 1: I would like to thank Ambrus Kecskés, Yelena Larkin, Melanie Cao, Moshe Milevsky, Kayla Freeman, Isil Erel, Greg Nini, Steve Karolyi, Peter Cziraki, George Georgopolous, Paolo Fulghieri, Mark Kamstra, Phuong Anh Nguyen, Vanya Ilieva, Mariasunta Giannetti, Participants at the 2019 Northern Finance Association (NFA) conference, Organizers of 2020 American Finance Association (AFA) and Organizers of 2020 Eastern Finance Association (EFA) conferences for including the paper in their programs. I would also like to thank seminar participants at York university brown bag, and participants at Schulich Research Day conference for helpful discussions, comments and suggestions.

In Chapter 2: I would like to thank Ambrus Kecskés, Yelena Larkin, Melanie Cao, Moshe Milevsky, Jonathan Karpoff, Sofia Johan, Yisong Tian, Alexander Dyck, Peter Cziraki, George Georgopolous, Mark Kamstra, Ming Dong, Paolo Fulghieri,Vanya Ilieva, Martijn Cremers, Kee Hong Bae and seminar participants at the Schulich School of Business-York University for helpful discussions, comments and suggestions.

In Chapter 3: I would like to thank Ambrus Kecskés, Yelena Larkin, Melanie Cao, Moshe Milevsky, Yisong Tian,Vanya Ilieva, Mark Kamstra, Sergei Davydenko, Jay Ritter and Michael Schill, Peter Cziraki, George Georgopolous, for helpful discussions, comments and suggestions and the Organizers of the 2020 SWFA conference for including the paper in their program.

Contents

List of Tables

List of Figures

Chapter 1

Creditor Rights, Debt Capacity and Securities Issuance: Evidence from Anti-Recharacterization Laws

1.1 Introduction

A considerable body of literature has explored the effects of stronger creditors' rights protection on firms' financing decisions. Most of the extant literature focuses on institutions, legal origins and cross-country settings to study the impact of creditors' rights protection on external financing. The results are generally inconsistent. Some papers find that stronger creditors' rights are associated with reduction in information asymmetry and increase in lending activities; while others find that due to costly asset liquidation in default, stronger creditors' rights discourage

the use of secured debt financing[1]. While the cross-country setting provides a granular understanding of the effects of stronger creditors' rights protection on financing decisions, it nevertheless suffers from the fact that cross-country differentials in both the type of creditors' rights protection and the type of enforcement mechanism are significant enough to generate contrasting results[2].

In this paper, I exploit a plausibly within-country exogenous variation in creditors' rights protection; namely the staggered adoption of anti-recharacterization laws by some U.S states. Under the U.S bankruptcy code 11 ("Chapter 11"- henceforth), the automatic stay clause gives discretionary rights to courts to identify collateral as either loans or true sales, and to declare the bankrupt firm as *"debtor in possession"*. Essentially, the automatic stay clause requires that once a firm files for bankruptcy, the courts should grant and empower the firm to have control rights over pledgeable assets. The bankrupt firm then retains its assets and possessions while undergoing reorganization. As a result, creditors are unable to seize collateral until the bankrupt firm has fully undergone liquidation or restructuring. This delay in creditors ability to recoup collateral results in uncertainty regarding the eventual value of claims and widens the misalignment in incentives between creditors and

[1]See La Porta et al. (1997, 1998), Djankov et al., (2007), Galindo and Micco, (2005), Acharya and Subramanian, (2009), Acharya, Shin and Yorulmazer,(2011), Ghoul et al, (2012), Vig, (2013), Pistor, (2005).

[2]Countries differ in collateral limitations, bankrutpcy exemptions, discharge provisions, credit regulations, political values, statutory responses and corruption levels. These factors significantly affect the credibility and enforceability of laws especially in under developed and emerging markets.

borrowers.

Following significant lobbying activities by the banking and securitization industries, seven U.S. states adopted anti-recharacterization laws (Kettering, 2008). These adoptions took place between 1997 and 2005. The seven states that adopted the laws are: Alabama (2001), Delaware (2002), Louisiana (1997), Nevada (2005), South Dakota (2003), Texas (1997) and Virginia (2004). These new laws enhanced the ability of creditors to repossess collateral during bankruptcy within these seven jurisdictions. In particular, under anti-recharacterization laws, firms first transfer collateral into special purpose vehicles (SPVs). These SPVs are generally low risk and tend to remain solvent reducing uncertainty regarding the value of collateral- even when the firm in question is undergoing restructuring. Additionally, under these new laws, the courts can no longer re-characterize true sales as loans. Thus, anti-recharacterization laws protect creditors from automatic stay and allow creditors to swiftly seize collateral or pledgeable assets from SPVs if a firm files for bankruptcy. As such, the states' staggered introduction of anti-recharacterization laws serves as a quasi-natural experiment since the laws improve access to external financing independent of firms' growth opportunities, and facilitate the pledgeability of assets for firms incorporated in these seven states (Mann 2017 ,Chu 2018, Favara, Gao and Giannetti 2018, Li, Whited and Wu 2016). The passage of anti-recharacterization laws, therefore, provides a setting to not only

investigate how firms respond to exogenous shocks in access to external financing but to also establish the causal effects of these responses. To this effect, I hypothesize and test the following conjectures: [1] Anti-recharacterization laws are associated with increase in debt capacity; [2] Anti-recharacterization laws are associated with increase in debt issuance; [3] Anti-recharacterization laws are associated with decline in equity issuance. Using a difference-in-differences methodology to estimate the causal impacts, I find strong evidence in support of these three conjectures.

Firstly, I examine the effects of stronger creditors' rights protection on firms' access to external financing. Anti-recharacterization laws enhance creditors' rights by facilitating swift seizure of collateral, and by reducing uncertainty regarding the value of pledgeable assets during bankruptcy. As such, following the passage of the laws, we would expect that creditors would be more willing to extend debt financing, which would lead to an increase in firms' debt capacity. Consistent with this hypothesis, I find that the adoption of anti-recharacterization laws is positively related to market leverage. Interestingly, I also find that anti-recharacterization laws affect debt maturity. Firms on average increase the proportion of long-term debt and reduce the proportion of short-term debt in their capital structure. This is because the enhanced ability of creditors to repossess collateral during bankruptcy minimizes information asymmetry and reduces uncertainty regarding the value of

collateral. Hence, creditors are more willing to provide long-term debt financing. Firms rebalance the composition of debt structure; that is, firms substitute away from costly short-term debt financing towards long-term debt financing. The results establish that the adoption of anti-recharacterization laws is not only positively associated with an increase in debt capacity but also affects firms' debt structure.

Second, I examine whether the staggered introduction of anti-recharacterization laws affects securities issuance and financing choices of firms incorporated in adopting states[3]. There are several reasons why improvement in creditors' rights protection may affects firms' securities issuance. Under the trade-off theory, capital structure is a result of firms trading off various costs and benefits. Such costs include bankruptcy costs and transaction costs. The strengthening of creditors' rights minimizes transaction costs and reduces uncertainty associated with the value of underlying collateral during bankruptcy. Both of these effects lead to increase in debt capacity and increase in lending activities. The key idea here is that since anti-recharacterization laws lead to exogenous increase in leverage, we would expect that the laws are positively related to debt issuance. My results largely support this hypothesis. I also find that this result is mostly driven by firms that proactively issue debt. A firm is classified as a proactive debt issuer if its

[3] Hovakimian, Opler and Titman (2001) find that security issuance is generally a function of deviation from target leverage. Their results imply that increase in debt capacity has implications for securities issuance.

total debt issuance in a given year is at least 5% of book value of assets. Proactive issuers tend to have higher needs for external financing and are therefore more likely to take advantage of the increase in access to debt financing following the adoption of anti-recharacterization laws.

My analysis also indicates that firms incorporated in states that have adopted anti-recharacterization laws reduce equity issuance. A firm's decision to issue equity is generally perceived as a sign of overvaluation (Myers and Majluf, 1984) and on average results in stock price decline (Asquith and Mullins, 1986, Loughran and Ritter, 1995). The exogenous increase in debt capacity following the adoption of anti-recharacterization laws implies that firms are more likely to reduce equity issuance. This is partly because even a small variance in the costs of issuing equity versus issuing debt can generate significant utilization of debt over equity (Almeida and Campello, 2007). Anti-recharacterization laws significantly increase the probability of creditors repossessing collateral in adopting states during bankruptcy or during financial distress, which reduces the uncertainty regarding the value of collateralized assets and leads to increase in debt capacity. Consistent with this hypothesis, I find that firms reduce equity issuance following the adoption of anti-recharacterization laws. Interestingly, I also find that the documented reduction in equity issuance is mostly driven by frequent or proactive equity issuers. Proactive equity issuers tend to face higher reduction in firm value[4] and

[4]Billet, Flannery and Garfinkel (2011): "We find that multiple patterns generate much worse perfor-

are therefore more likely to opportunitiscally reduce equity issuance when faced with increased debt capacity and improved access to external financing. Additionally, I also find that firms incorporated in adopting states also increase stock repurchases.

These findings are robust to a number of concerns. The first concern is that the results may be due to confounding effects. To address this concern, I conduct a placebo test; that is, I use a randomized matched subsample in which the documented treatment effects are expected not to be observed. I find that the observed treatment effects of anti-recharacterization laws on firms' financing choices and securities issuance decisions are not observed in the placebo group. I also find that the results are consistent and stronger when we only examine the three states that adopted anti-recharacterization laws before 2003, prior to the first legal challenge. Additional robustness tests include: [1] Demonstrating that the results are robust to accounting for the effects of the 2008 financial crisis, [2] Demonstrating that the results are consistent and more pronounced amongst financial constrained firms, [3] Demonstrating that the results are consistent when accounting for the availability of internal funds, [4] Demonstrating that the results are not due to mechanical balance sheet expansion or growth in firm level covariates.

This paper contributes to several strands of existing literature. First, I

mance than single events...underperformance is more a function of the variety and frequency of firms' issuance activities".

contribute to the emerging and ongoing literature on the effects of anti-recharacterization laws on firms' performance. Mann (2017) examines the role of anti-recharacterization laws in the context of patents and innovation and documents a positive relationship. Chu (2018) finds that anti-recharacterization laws reduce corporate leasing and that this result is mostly concentrated amongst financially constrained firms. Favara, Gao and Giannetti (2018) find that anti-recharacterization laws mitigate the effects of uncertainty on firms' behavior. Li, Whited and Wu (2016) find that anti-recharacterization laws enhances financial flexibility. And Ersahin (2018) finds that anti-recharacterization laws are positively related to firm productivity. However, none of these papers examine the effects of anti-recharacterization laws on firms' debt structure and securities issuance. In particular, external financing is costly and the adoption of laws that strengthen creditors' rights minimizes information asymmetry and directly impacts securities issuance decisions. I first document that following the adoption of anti-recharacterization laws, firms increase debt capacity. Specifically, firms in the adopting states increase total market leverage, reduce short-term debt financing and increase the fraction of long-term debt in their capital structure. I then present evidence to the effect that the documented increase in debt capacity has profound implications for firms' financing activities. In particular, I find that firms incorporated in the adopting states not only increase market leverage but also significantly increase debt issuance and

significantly decrease equity issuance.

Second, I contribute to the literature that examines the effects of stronger creditors' rights protection on firms' performance. Central to this literature is the argument that credit would not be extended if there were no credible legal enforcement mechanisms. The legal enforcement mechanism under consideration in this paper is the ability of creditors to repossess collateral during default or bankruptcy. The extant literature in this area has documented contrasting results. For instance, Vig (2013) examines the effects of the passage of a law in India that enhances creditors' ability to repossess collateral and finds reduction in the overall leverage and secured debt financing. Liu et al. (2018) examine the passage of the first property rights laws in China and find that firms reduce leverage. Coco (2000) presents a model in which collateral mitigates information asymmetry and enhances extension of credit. And find that when the threat to repossess collateral during default is credible, it aligns borrowers and lenders incentives and facilitate lending activities. Eisfeldt and Rampini (2013) present a model in which both leasing and collateral affects capital structure. La Porta et al (1997, 1998)[5] and Galindo and Micco (2001) show that stronger creditors' rights protection affects financial market development and encourages extension of credit to risky and smaller firms. My results largely support the notion that stronger

[5] La Porta et al. (1998)"..creditors are paid because they have the right to repossess collateral. Without these rights, investors would not be paid, and therefore firms would not have the benefit of raising funds from investors..."

creditors' rights protection facilitates lending activities and results in more efficient capital markets. These results stand in contrast to the negative relation between stronger creditors rights and leverage documented in Vig (2013) and Liu et al. (2018), whose sample consists of Indian firms and Chinese firms respectively.

Third, I contribute to the literature on securities issuance. McKeon (2012), Denis and McKeon (2012) find that firms decrease large equity issuance following increase in access to debt financing. Frank and Goyal (2015) study the effects of profitability on changes in equity due to active securities issuances and repurchases of securities. And find that proactive issuers tend to reduce equity issuance following increase in profitability. Billet, Flannery and Garfinkel (2011), and Ritter and Huang (2018) find that the frequency and recency of security issuance results in lower long-run abnormal returns. DeAngelo, DeAngelo and Whited (2011) find that financial flexibility, that is unused debt capacity, plays a key role in capital structure dynamics. Note that none of these papers explicitly examine the effects of stronger creditors' rights protection on securities issuance decisions. However, my results are generally consistent with the overarching themes and findings in the securities issuance literature. To the best of my knowledge, this paper is the first to study the effects of anti-recharacterization laws on debt maturity and firms' securities issuance decisions. In particular, I find that improvement in creditors' rights protection can partially resolve the puzzling observation that firms

tend to reduce equity issuance after exogenous shock in their debt capacity[6]. I also find that firms reduce equity issuance and increase debt issuance following the adoption of anti-recharacterization laws.

The rest of this paper is organised as follows. Section [2] presents firm-level data and institutional details on anti-recharacterization laws. Section [3] describes the identification strategy. Section [4] analyzes the relationship between the adoption of anti-recharacterization laws, debt capacity, external financing and securities issuance. Section [5] presents a battery of robustness tests. Section [6] concludes.

1.2 Data

1.2.1 Firm-Level Data

The sample consists of all U.S incorporated firms with total assets greater than $10Million between 1990 and 2012. All data are extracted from the Compustat database, North America Fundamentals Annual file. I exclude financial firms (SIC 6000-6999) since it is difficult to assess their liquidity levels. I also exclude utilities (SIC 4900-4999) since their operations are subjected to government regulations. For a firm to be included in Compustat, I require that the state of incorporation be available in Compustat.

Table [1] presents the summary statistics of all relevant financial

[6]See Denis and Mckeon (2012) fo discussion of this puzzle within the context of trade-off models

variables. The reported statistics are: mean, median, standard deviation, 25^{th} and 75^{th} per centile respectively. Selection of firm-level controls is similar to Frank and Goyal (2009, 2015) and Favara, Gao and Giannetti (2018). Leverage is estimated as the sum of long-term debt (DLTT) and debt in current liabilities (DLC) scaled by total assets. The average leverage is about 0.23 while the 25^{th} per centile of the leverage distributon is about 0.0175 and the 75^{th} per centile is about 0.37. Net leverage is estimated as leverage net of cash, where cash is estimated as cash and short-term investment (CHE) scaled by total assets. Cash has a mean and a median of 20% and 9.5% respectively. To be consistent with prior literature, size is estimated as the natural logarithms of total sales. Note that in the data, the correlation between total sales and total assets is about 90%, implying that sales is a robust proxy for firm size. Profits are estimated as operating income before ordinary expense (OIBDP) scaled by total assets, while tangibility is estimated as the property, plant and equipment (PPENT) scaled by total assets and averages around 27%.

Market-to-book (MB) ratio is estimated as the ratio of total market value of assets to book value of assets. Market value of assets is estimated as the sum of total assets and market value of equity less ordinary equity. The average MB is about 2.30. Debt issuance is estimated as issuance of long-term debt (dltis) plus increase in current debt (dlcch). The average debt issue as a percent of total assets is about 7%. Equity issuance is estimated as sale of common stock (prstkc) scaled by total assets. And the average

equity issue is 12% of total assets . Investment is capx scaled by total assets. The dividend dummy equals to "1" if a firm pays dividend in that fiscal year, otherwise it equals to zero.

1.2.2 Institutional Background:

The Staggered Adoption of Anti-Recharacterization Laws

The availability of collateral is perhaps the most important determinant of access to external financing. Collateral reduces information asymmetry and aligns incentives between borrowers and creditors. In order to credibly signal availability of collateral, firms can first transfer collateral or pledged assets to special purpose vehicles (SPVs)[7]. The main advantage of using SPVs is that they remain solvent even during bankruptcy or financial distress. This is because SPVs tend to have limited exposure to risk; as such pledgeable assets retain value over time.

However, through the automatic stay clause the courts have the ultimate discretionary rights to re-characterize assets in SPVs as either loans or true sales. That is, before the state adoption of anti-recharacterization laws, the automatic stay clause in the bankrupcy code (Chapter 11) implies that creditors are constrained in their capacity to repossess collateral. The motivation behind the adoption of anti-recharacterization laws is that by ensuring true sales are

[7]See Feng, Gramlich and Gupta (2009), Gorton and Souleles (2007) for detailed discussion on use of special purpose vehicles(SPVs)

characterized as such, the laws effectively transfer some control rights from borrowers to creditors. Creditors are thus able to seize pledged assets in case the firm files for Chapter 11. Hence, anti-recharacterization laws effectively shield creditors from automatic stay.

The passage of anti-recharacterization laws also strengthens creditors rights by both minimizing the uncertainty associated with collateral value, and by treating collateral in SPVs as true sales if labelled as such. The laws came to fruition as a result of intense lobbying from the banking and securitization industries (Kettering, 2008). As a result of these lobbying activities, seven U.S states passed laws specifically mandating that collateral transfers to special purpose vehicles (SPVs) be treated as true sales if they are labelled as such. The seven states that adopted anti-recharacterization laws are: Texas and Louisiana in 1997, Alabama in 2001, Delaware in 2002, South Dakota in 2003, Virginia in 2004, and Nevada in 2005.

The fact that it was the lobbying efforts by the banking and securitization industries that led to the drafting and introduction of anti-recharacterization laws makes the adoption of these laws plausibly exogenous. Hence, the staggered introduction of anti-recharacterization laws serves as a quasi-natural experiment to evaluate firms' response to this exogenous increase in access to external financing. The laws effectively strengthened creditors' rights by: [1] Facilitating swift seizure and repossession of assets from SPVs, [2] Limiting applicability of

automatic stays and [3] Reducing uncertainty regarding the value of collaterized assets. Overall, anti-recharacterization laws reduce the wedge and misalignment in incentives between creditors and borrowers. As such, we would expect that improvement in creditors' ability to repossess collateral or pledgeable assets during bankruptcy or financial distress would be positively related to debt capacity.

1.3 Empirical Design and Identification Strategy

This paper examines the effects of anti-recharacterization laws on firms' debt capacity, external financing and securities issuance. The main objective is to examine how improvement in creditors' rights protection affects firms' financing choices. The null hypotheses aim to address the following questions for firms incorporated in the adopting states: [1] What are the effects of anti-recharacterization laws on firms' debt capacity and debt structure, [2] What are the effects of anti-recharacterization laws on firms' securities issuance decisions {that is the choice between debt and equity financing}? My regression analysis shows that after the adoption of anti-recharacterization laws, firms incorporated in the adopting states increase total market leverage, decrease short-term debt financing and increase the fraction of long-term debt in their capital structure. These firms also reduce equity issuance and increase debt issuance.

To test the above hypotheses, my identification strategy compares firms' financing choices and securities issuance in adopting states with financing choices and securities issuance of firms incorporated in non-adopting states, before and after the adoption of anti-recharacterization laws. I start by estimating the following difference-in-difference panel regression model[8]:

$$y_{i,s,t} = \alpha_i + \beta_1 Law_{i,s,t} + \mathbf{X'_{it}}\psi + \eta_i + \delta_t + \epsilon_{it} \tag{1.1}$$

where $y_{i,s,t}$ is an outcome of firm "i" incorporated in state "s" during year "t". $\mathbf{X_{it}}$ is a vector of firm-level variables that are highly correlated with leverage."Law" is a dummy variable equal to "1" if a firm is "treated", that is if a firm is incorporated in state "s" that has adopted anti-recharacterization laws at time "t". Because of the staggered introduction of the anti-recharacterization laws, the dummy "Law" takes the value of "1": if a firm is incorporated in either Texas or Louisiana after 1997, if a firm is incorporated in Alabama after 2001, if a firm is incorporated in Delaware after 2002, if a firm is incorporated in South Dakota after 2003, if a firm is incorporated in Virginia after 2004, and if a firm is incorporated in Nevada after 2005. A firm is "treated" if it is incorporated in state "s" that has adopted the anti-recharacterization laws at time "t". All standard errors are clustered at firm-level. η_i is the firm fixed effects, δ_t is time fixed effects and ϵ_{it} is the error term. And α_i is a

[8]A similar approach is applied in Mann, 2017, Favara, Gao and Giannetti, 2018, Li, Whited and Wu, 2016.

vector capturing firm-specific intercepts.

As outlined above, the main goal of this paper is to study the effects of stronger creditors' rights protection on financing choices, firms' debt capacity and securities issuance. To this effect, I exploit the exogenous variation in creditors' rights protection induced by the staggered introduction of anti-recharacterization laws by some U.S states. I start by examining the effects of anti-recharacterization laws on firms' debt capacity. My primary proxy for debt capacity is market leverage; the advantage of using this measure of leverage is that it is generally forward-looking and therefore takes into account the exogenous increase in debt capacity. Consistent with Denis and McKeon (2012), market leverage is estimated as[9]:

$$\begin{aligned} MarketLeverage_{it} &= \frac{DLTT_{it} + DLC_{it}}{DLTT_{it} + DLC_{it} + MVE}, \\ st.MVE &= PRCC_{it} XCSHO_{it} \end{aligned} \tag{1.2}$$

Where DLC is debt in current liabilities including the portion of long-term debt due within one year, and DLTT is the amount of long-term debt. MVE is the market value of equity estimated as the product of year-end common shares outstanding (CSHO) and year-end common share stock price (PRCC_F). The estimated mean and median of market leverage are about 21% and 12% respectively. The distribution of market

[9]Barclay, Morellec, and Smith (2006) present evidence that book-leverage is backward looking while market leverage is forward looking

leverage ranges from about 1% in the 25^{th} per centile to about 35% in the 75^{th} per centile[10].

Figure [1.1] presents the time series evolution of mean market leverage over the sample period. Observe that the first vertical reference line represents the initial introduction of anti-recharacterization laws in Texas and Louisiana in 1997, and the second vertical reference line represents the introduction of the laws in Nevada in 2005. Figure [1] demonstrates that the average market leverage of "treated group" (solid line) is higher than for the "control group" (long dash line). The figure suggests that increase in market leverage following adoption of anti-recharacterization laws is evidence of the exogenous increase in debt capacity and access to external financing. The graphical evidence supports the hypothesis that anti-recharacterization laws reduce uncertainty surrounding the value of collaterized assets and thus lead to an increase firms' debt capacity. Notice also that for the pre-adoption period, there is no discernible difference between "treated" firms and "control" firms. This result is crucial as it satisfies the common or parallel trend assumption in difference-in-difference setting. That is, mean market leverage for adopting states (treatment firms) and non-adopting states (control firms) would follow the same time trend in the absence of anti-recharacterization laws. Overall, Figure [1.1] suggests that there is no

[10]Distribution of leverage is consistent with the observation that about 10% of U.S. firms in Compustat universe have zero debt-Strebulaev and Yang, 2013.

difference between the "Treated" firms and "Control" firms prior to the introduction of the laws. As such Figure [1.1] suggests that the adoption of anti-recharacterization laws is associated with increase in debt capacity.

1.4 Empirical Results

1.4.1 Anti-recharacterization Laws, Debt Capacity and Debt Policy

Identifying the Effects of Laws Adoption on Market Leverage

To examine the effects of anti-recharacterization laws on firms' financing choices and debt capacity, I estimate the reduced form difference-in-difference regression outlined in Equation [1] above. Selection of independent variables (**X**), is motivated by prior literature (Lemmon, Roberts and Zender, 2008, Frank and Goyal, 2009). The variables that extant literature has documented as highly correlated to leverage include: size, profitability, tangibility and market-to-book ratio. All variables are constructed as defined in section 2.1 above. Following Petersen (2009), all standard errors in Equation [1] are clustered at firm-level.

Table [2A] presents the regression estimates from Equation [1] above. Models [1,2] present panel regression estimates in which market leverage is the firm's outcome variable of interest and the anti-recharactization laws dummy is the sole independent variable. Market leverage is estimated as in Equation [2] above. The coefficient of the dummy variable

"Law" is positive and statistically significant at 1% level. The result suggests that "treated" firms significantly increase market leverage following state adoption of anti-recharacterization laws. The results support the notion that anti-recharacterization laws, by minimizing information asymmetry and reducing uncertainty regarding the value of collateralized assets, result in increase in debt capacity. Additionally, anti-recharacterization laws also reduce demand for insurance (Favara, Gao and Gianneti, 2018), since these laws enhance the ability of creditors to repossess collateral or pledgeable assets during bankruptcy.

Models [3,4] control for firm-specific factors that are highly correlated with the firm's leverage decision. Observe that even after controlling for these factors, the estimated coefficient of the dummy variable "Law" is positive and statistically significant across all models. Economically, the adoption of anti-recharacterization laws is associated with an increase of 6.05% over mean market leverage. The estimated coefficients of firm-specific factors are generally consistent with those reported in prior literature (Rajan and Zingales, 1995). Profitability is negatively related to market leverage. The result is consistent with the notion that highly profitable firms find it less desirable to issue debt since such additional debt tends to finance dividend issues rather than to increase equity (Hennessy and Whited, 2005). Tangibility is positively related to market leverage. This is because tangibility is a proxy for collateral, which minimize information asymmetry between creditors and lenders.

Tangibility also minimizes agency costs associated with risk shifting. Firms with large a collateral base tend to be more valuable during financial distress and liquidation. Creditors are more willing to supply loans and extend additional credit to firms with a large collateral base. Additionally, firms that tend to have greater leverage tend to employ a higher proportion of secured debt financing in their capital structure (Giambona, Mello and Riddiough, 2012).

Size is positively related to market leverage[11]. Large firms tend be more diversified; as such, firm size serves as an inverse proxy for bankruptcy. Large firms also tend to have easier access to external financing than smaller firms (Gertler and Gilchrist, 1994). Large firms are also more active in issuing debt (Frank and Goyal, 2015) and are more likely to finance projects with funds raised in capital markets (Bougheas et al., 2006). On the other hand, small firms tend to borrow significantly from banks since the market perceives such firms to be generally opaque and risky. In general, small firms tend to have a restricted access to public debt and are constrained in their ability to issue debt securities. Note also that large debt issues by small firms might significantly increase the probability of financial distress. As a result, small firms tend to be highly sensitive to securities issuance costs. Market-to-book ratio is an indicator of whether a firm is a value firm. Growth firms tend to have significantly greater market value than book value,that is, higher MB. The estimated

[11] "Large firms ....have easier access to public debt markets and face fewer obstacles in accessing securities markets". Frank and Goyal (2015).

coefficient of MB is negative but not robust.

In models [5,6] balance sheet leverage is the dependent variable[12]. Balance sheet leverage is estimated as total liabilities scaled by total assets. The coefficient estimates of firm factors are generally consistent with those reported in models [1-4], but my results in models [5,6] are more subtle than those reported in Li, Whited and Wu (2016). Interestingly, the MB coefficient is positive, a result which is consistent with the notion that growth firms tend to have higher leverage relative to value firms.

Note that due to the right-skewed nature of leverage distribution[13], the coefficient estimates reported in Table 2[A] might be estimating conditional mean. That is, not only is the underlying distribution affecting the coefficient estimates, but factors such as asymmetries and sample selection might bias the estimates and lead to misinterpretation of the source(s) of identification (Frank and Goyal, 2015). In order to minimize this bias, I re-estimate the difference-in-difference regression model {Equation [1]} using quantile regression analysis[14]. The advantage of using quantile regression analysis is that it takes into account data

[12]Welch (2010) argues that balance sheet leverage is a robust measure as it predicts more leverage when either the firm's financial or non-financial liabilities are higher, and that unlike financial debt to asset ratio, neither market leverage nor balance sheet leverage declines with non-financial liabilities. This suggests that market leverage is a robust measure of firms leverage.

[13]Ref. Table [1], reported mean(median) of leverage 0.234(0.181).

[14]See Cameron and Trivedi (2010), Koenker and Basset (1978), Koenker and Hallock (2001) for detailed discussion on quantile regression analysis.

distributional features other than the mean. In addition, quantile regression estimators tend to be consistent under weaker stochastic assumptions than estimates from using least squares estimation (Manski 1975, Powell 1984).

Model [1] of Table 2[B] replicates model [4] of Table 2[A]. Models [2,3,4] report estimates for 25^{th}, 50^{th} and 75^{th} per centile respectively. The results from the quantile regressions show the marginal effect of anti-recharacterization laws on market leverage conditional on various points in the distribution. The results are generally consistent with the estimates reported in Table 2[A]. The coefficient estimates for the 25^{th} and the 50^{th} per centile suggest that firms with higher debt capacity tend to increase market leverage significantly following the state's adoption of anti-recharacterization laws. Nevertheless, the coefficient estimate of the dummy variable "Law" for firms in the 75^{th} per centile of leverage distribution is not statistically significant, in part because highly levered firms have a lower capacity for additional external financing. These firms are already operating either close to or within the zone of financial distresss. Therefore, such firms on average have a higher probability of passing up otherwise positive net present value investment opportunities or projects (Myers, 1984). That is, the marginal benefit from an additional dollar of external financing (as a result of exogenous increase in debt capacity due to the state adoption of anti-recharacterization laws) is less than the marginal cost.

External Financing Choice: Short-term Debt vs. Long-term Debt

So far, the estimates reported in Table 2[A&B] demonstrate that the adoption of anti-recharacterization laws is positively associated with increase in debt capacity. However, the average firm debt consists of short-term and long-term debt. Short-term debt tends to consist mostly of bank debt while long-term debt tends to reflect long-term liabilities and obligations from the market. Hence, short-term debt financing serves as a robust proxy for bank financing and long-term debt financing serves as a robust proxy for market or public debt (Boughes, Mizen and Yalcin, 2006). The main goal of this section is to address the concern that the effects of anti-recharacterization laws on debt capacity might be heterogeneous and dependent on source of external financing: Does the adoption of anti-rechracterization laws affect debt structure? The financial flexibility that comes from substituting short-term debt for long-term debt financing reflects the option-value of unused debt capacity[15]. As access to external financing improves, firms substitute away from costly forms of external financing. In order to test this conjecture, I estimate the effects of anti-recharacterization laws on financial choices of firms using the following reduced form difference-in-difference regression model {augmented form of Equation [1]}:

$$Leverage_{i,s,t} = \alpha_i + \beta_1 Law_{i,s,t} + \mathbf{X}'_{\mathbf{it}}\psi + \gamma Leverage_{i,s,t-1} + \eta_i + \delta_t + \epsilon_{it} \quad (1.3)$$

[15]See DeAngelo, DeAngelo and Whited (2011) for discussion on the option value of debt capacity.

Where $Leverage_{i,s,t}$ is either short-term debt or long-term debt scaled by total assets. Equation [3] includes initial or previous period leverage. The inclusion of initial leverage addresses two concerns: [i] Managers might be concerned about the long-term equilibrium level of leverage, which might lead to low explanatory power (Lemmon et al., 2008); [ii] Extant literature has documented that firms tend to rebalance leverage less frequently (Leary and Roberts, 2005). These two concerns imply that not including initial or lagged leverage in the model might lead to bias estimates. All standard errors are clustered at the firm-level.

Table [3] evaluates the response of financial choices to the state adoption of anti-recharacterization laws controlling for firm specific characteristics. Intuitively, we would expect that as creditors' rights strengthen, firms would be more likely to substitute short-term debt for long-term debt financing. This is because short-term debt tends to consist mainly of bank acceptances and overdrafts, and notes payable to banks and other intermediaries. While long-term debt tends to consists of capitalise leases, commercial paper, debentures, convertible debt, subordinated debt and bonds-and-notes[16]. This implies that short-term debt tends to be mainly bank finance and long-term debt consisting mainly of market or public debt. On average, bank debt is costlier due to costly state verifications (Diamond 1984, 1991). Anti-recharacterization laws enhance repossession of pledgeability assets during bankruptcy or

[16]See Welch (2010) for detailed discussion on balance sheet components of total liabilities.

financial distress, which results in increase in debt capacity. Firms respond to this increase in access to debt financing by substituting between bank debt financing and market debt financing.

The results in Table [3] are strongly in support of the above prediction. Models [1-3] present estimates in which the dependent variable is long-term debt scaled by total assets. The coefficient of the dummy variable "Law" is positive and statistically significant across all three models. These results suggest that the adoption of anti-recharacterization laws- that is, strengthening of creditors rights-is positively related to long-term (market) debt financing.

The results are also consistent with the notion that firms with collaterized assets have greater access to long-term debt financing. In addition, since the laws enhance creditors ability to repossess pledgeable assets, firms with a high collateral base significantly increase the fraction of long-term debt in their capital structure. Economically, the adoption of anti-recharacterization laws is associated with an increase of 3.5% in long-term debt financing. Models [4-6] present estimates where the dependent variable is the ratio of short-term debt to total assets. The coefficient of the dummy variable "Law" is negative and statistically significant across all models. Economically, the adoption of anti-recharacterization laws is associated with a decline of 7.2% in short-term debt financing. This result suggests that as creditors' rights improve, firms tend to substitute away from costly bank debt financing

and instead increase the fraction of market debt in their capital structure. This result is consistent with the observation that as the value of collateral increases, firms tend to reduce short-term debt financing (Bougheas et al., 2006), since collateral is associated with increased access to market debt.

Overall, the results in Table [3] demonstrate that the effects of anti-recharacterization laws are not only limited to increase in leverage but the laws also affect the dynamic relationship between short-term debt and long-term debt financing. On average, firms respond to the adoption of anti-recharacterization laws by reducing the fraction of short-term debt and increasing the fraction of long-term debt in their capital structure.

1.4.2 Anti-recharacterization Laws and Financing Activities: Securities Issuance Decisions

Financing Activity: Effects of Laws on Debt Issuance

An important question in the context of of creditor rights laws is: How does debt issuance behavior vary with the adoption of anti-recharacterization laws? Since anti-recharacterization laws enhance the value of pledgeable assets and facilitate swift seizure of collateral during bankruptcy; we would expect that the laws are positively related to debt issuance. Anti-recharacterization laws effectively transfer some control rights from borrowers to creditors. Hence, creditors are more willing to extend credit to firms in adopting jurisdictions, which increases firms' access to external financing. That is, the laws induce financial

flexibility as a result of increase in the option-value of unused debt capacity. Ceteris paribus, firms would response to this exogenous change in debt capacity by issuing debt.

Table [4] presents estimates in which debt issuance is the dependent variable. Debt issuance is estimated as the sum of issuance of long-term debt (dltr) and changes in current debt (dlchh) scaled by total assets[17]. Models [1&2] present panel regression estimates of debt issuance on an indicator for the state adoption of anti-recharacterization laws, controlling for firm specific characteristics. Consistent with the above prediction, the coefficient of the indicator variable "Law" is positive and statistically significant, suggesting that on average firms tend to issue more debt following the adoption of anti-recharacterization laws.

Nevertheless, there might be some concerns that the reported effects of anti-recharacterization laws on debt issuance might simply reflect the effects of the laws on changes in leverage. First, this cannot be the case, since changes in leverage reflects changes in debt capacity. The first reassuring evidence comes from univariate analysis. The correlation between debt issuance and change in leverage is about 26% in the data. To further address this issue, I use change in leverage as the dependent variable in models [3&4] of Table [4]. The coefficient of the dummy variable "Law" is positive and statistically significant at the 1% level. However, observe that the coefficient estimates of the dummy variable

[17]Debt issuance definition is consistent with Frank and Goyal, (2015).

"Law" in models [1&2] are statistically different from the coefficients estimates reported in models [3&4]. The results indicate that changes in total leverage reflect changes in debt capacity. Thus, the results in models [3&4] supports the notion that the adoption of anti-recharacterization laws is positively related to debt capacity. The results in models [1&2] suggest that improvement in creditors' rights leads to increase in debt issuance.

How does security issuance vary with the adoption of anti-recharacterization laws? Extant literature documents that frequency of security issuance is not only prevalent but might also reflect special features of the issuing firm (Billet et al. 2011, Ritter and Huang, 2018). That is, firms that are frequent issuers might be very different from firms that are passive issuers. Hence, the effects of state adoption of anti-recharacterization laws on securities issuance might be heterogeneous across firms. Firms that actively issue debt are more likely to increase debt issuance following the adoption of the laws.

In Table [5] firms are sorted into active debt issuers and passive debt issuers. In models [1-4] active firms are classified as those firms that have a debt issuance in excess of 5% of total assets, otherwise a firm is classified as passive debt issuer. To ensure that the above cut-off is not too restrictive, models [5-8] present estimates for which active debt issuers are classified as those firms that issue debt in excess of 3% of total assets[18].

[18]Sorting is similar to Frank and Goyal (2015) , Ritter and Huang (2018)

On the other hand, passive debt issuers are those firms that issue debt less than 3% of firm total assets. Consistent with the above prediction, I find that the coefficient estimate of active debt issuers is positive, statistically significant and greater in magnitude than the coefficient estimate of passive debt issuers. The results suggest that the effects of anti-recharacterization laws on debt issuance decision is more profound amongst firms that are active issuers of debt. The combined results of Tables [7&8] suggest that the likelihood of debt issuance increases with the adoption of anti-recharacterization laws and that this result is mostly driven by firms that proactively rebalance leverage.

Financing Activity: Effects of Laws on Equity Issuance

The results in Tables [2-5] demonstrate that firms increase both leverage and debt issuance following the adoption of anti-recharacterization laws. Intuitively, we would expect that as access to leverage increases, firms might reduce not only equity issuance but also the frequency of equity issuance. This is partly because large equity issuance is costlier than debt issuance of similar size. In addition, the market react differently to equity issuance than debt issuance. Equity issuance is generally associated with overvaluation. Indeed, the announcement of equity issuance is associated with stock decline (Asquith and Mullins, 1986, Bayless and Chapkinsky 1996, Loughran and Ritter, 1995, Ritter, 2002)[19]. While equity issuances

[19] Billett et al (2006)"Numerous studies document substantial underperformance during the three-five years following security issuances, issuing firms...underperforms the relevant benchmarks by 4% to 10%."

are followed by significantly lower raw returns, the announcement of public debt issuance is associated with non-zero to slightly positive returns (Jung, Kim and Stulz, 1996). Note also that frequent issuers of equity tend to not only have lower book-to-market ratios, but are also less profitable. Since anti-recharacterization laws enhance access to external financing, firms might subsitute away from issuing costly equity. That is, the adoption of anti-recharacterization laws might induce substitution effects amongst financial choices. Ceteris paribus, we would expect a negative relationship between adoption of anti-recharacterization laws and equity issuance for firms incorporated in adopting jurisdictions.

To test whether firms proactively reduce equity issuance following the adoption of anti-recharacterization laws, I follow a similar approach to Denis and McKeon (2012). To this effect, I employ sale of common and preferred stocks (SSTK) as the proxy for equity issuance. SSTK is a robust proxy as it takes into account both active external equity offerings to outside investors and proceeds from exercise of employee options. Equity issuance is estimated as sale of common and preferred stocks scaled by total assets. Table [6] presents panel regression model estimates predicting the effects of anti-recharacterization laws on equity issuance. Models [1&2] control for firm size, profitability, tangibility and market-to-book. The coefficient of the indicator variable "Law" is negative and statistically significant at the 1% level. The results are consistent with the above prediction and establish that firms reduce

equity issues after state adoption of anti-recharacterization laws. Models [3&4] control for additional covariates; the results are consistent with those reported in models [1&2]. Equity issuance is negatively correlated with state adoption of anti-recharacterization laws.

The next step is to consider the frequency of equity issuance. It could be the case that firms that actively issue equity behave differently from firms that infrequently or passively issue equity. To be consistent with prior literature (Frank and Goyal, 2015, Ritter and Huang, 2018), a firm is classified as an "Active" equity issuer if its sale of common and preferred stocks is greater than 5% of total assets; otherwise the firm is classified as a"Passive" equity issuer.

Table [7] presents estimates in which firms are sorted by whether they are "Active" or "Passive" equity issuers. Models [1&3] present estimates for firms that proactively issue equity. Models [2&4] present estimates for passive issuers of equity. The results demonstrate that firms that proactively issue equity reduce equity issuance following the adoption of anti-recharacterization laws. These findings show that the estimates reported in Table [6] are mostly driven by proactive equity issuers.

Overall, the results in Table [7] are consistent with the notion that proactive equity issuers tend to have greater and pressing needs for external financing. Indeed, prior literature finds that immediate need for financing due to squeeze in internal funds is a significant predictor of equity issuance (Ritter and Huang, 2017). Additionally, since the

adoption of anti-recharacterization laws is associated with increase in access to external financing, proactive issuers reduce equity issuance more than passive issuers. This is because it is more costly to issue equity than to issue debt, and active equity issuers benefit more from the easier access to debt financing following anti-recharacterization laws. The results are consistent with the notion that even a small divergence in the costs between equity and debt issuance significantly affects firms' securities issuance decisions. In such cases, firms tend to significantly issue debt over equity.

1.5 Robustness

1.5.1 Endogeneity and Falsification Test: Placebo Effect

One concern is that the documented effects of anti-recharacterization laws on debt capacity and financing activities might simply be due to some action(s) other than the adoption of the laws. To address this concern, I closely follow the placebo test outlined in Angrist and Kruger (1999)[20]. I start by using a different subsample of firms incorporated in those states that have not adopted anti-recharacterization laws. In my setting, the treatment is the adoption of anti-recharacterization laws and the "treatment effects" are: [1] Increase in market leverage, [2] Decline in equity issuance and [3] Increase in debt issuance. In order to infer any

[20]See Balakrishan, Billings, Kelly and Ljungvist, (2014) for a similar setting in the context of liquidity

causal relationship between the adoption of anti-recharacterization laws and the above treatment effects, the placebo test should not yield similar "treatment effects". Otherwise, the outlined treatment effects might be attributable to either ommitted variable(s) problem or some unobserved action(s), but not to anti-recharacterization laws.

In implementing the placebo tests, I first create a matched sample of firms (placebo group) incorporated in a state of similar characteristics to the adopting state. These characteristics includes similar population size, location proximity and economic activity (GDP) to the state that has adopted anti-recharacterization laws. To create the subsample, I first begin by creating a subset of states of similar characteristics as the state that has adopted anti-recharacterization laws; I then randomly selects a state from this subset. This process is then repeated for each of the seven states under study. This selection process results in a new subsample- which serves as the "control group". In the new subsample, Louisiana is replaced by Kentucky, Virginia is replaced by Washington, Alabama is replaced by South Carolina, Delaware is replaced by Montana, Texas is replaced by Michigan, South Dakota is replaced by North Dakota and Nevada is replaced by Arkansas. The key idea here is that if the documented treatment effects are attributable to a placebo effect, we would expect to observe similar treatment effects in the subsample- that is in the states that have not adopted anti-recharacterization laws. In order to estimate this effect, I create a dummy variable: "Placebo law".

The dummy takes a value equal to "1" for firms incorporated in: Kentucky and Michigan after 1997, in North Dakota after 2003, in Washington after 2004, in Montana after 2002, in South Carolina after 2001 and in Arkansas after 2005. Otherwise, "Placebo Law" equals zero.

The results in Table [8] indicate that the coefficient of the dummy variable "Placebo Law" is statistically insignificant. The results demonstrate that the "placebo group" does not yield the same treatment effects as the "treatment group". That is, the effects attributable to the staggered adoption of anti-recharacterization laws are not observable in the "control group". The absence of "treatment effects" in the placebo group is strong evidence that the documented treatment effects are indeed mostly driven by the state adoption of anti-recharacterization laws and not by potential confounding effects or omitted variable(s) problem.

1.5.2 Legal Challenge(s): Federal Laws vs. State Laws

In 2003 anti-recharacterization laws were challenged in the federal courts. In the case of, *Reaves Brokerage Company Inc. v. Sunbelt Fruit & Vegetable Company*, the federal court recharacterized the debtor's transfer. The creditors were unable to repossess collateral during this specific bankruptcy case. The court's decision increased uncertainty regarding the viability and enforceability of state-level anti-recharacterization laws. However, note that the federal court's ruling in this case did not completely overturn the state-level anti-recharacterization laws; the

ruling simply set a precedent upon which future cases might challenge the state's anti-recharacterization laws. Indeed, in the 2016 case of *Pacifica L 51 LLC vs. New Investments Inc.*, the 9^{th} circuits ruled that "...a debtor may cure a default only by fulfilling the debtors obligations under its loan agreement, including payment of interest at a higher post-default rate"[21,22].The key concern here is that the potential challenges to the laws might weaken the effects of anti-recharacterization laws, which would weaken the documented "treatment effects".

To address this concern, I create a dummy variable "$Law_3states$" which takes a value of "1" if a state passed anti-recharacterization laws before 2002, and equals to zero if otherwise. This means that there are only three states under study, namely Texas and Louisiana, which passed anti-recharacterization laws in 1997, and Alabama, which passed the laws in 2001. In this case, the "treated firms" are those incorporated in these three states.

The estimates reported in Table [9] below are generally consistent with the estimates reported in Tables [2-7]. The results in models [1-6] suggest that firms incorporated in these three states increased market leverage, increased debt issuance and decreased equity issuance following state adoption of anti-recharacterization laws. Observe also that the reported coefficient estimates of "$Law_3states$" are higher than those reported for all

[21] For details see https://cdn.ca9.uscourts.gov/datastore/opinions/2016/11/04/13-36194.pdf

[22] https://www.quarles.com/christopher-combest/publications-and-presentations/lenders-are-entitled-to-default-interest-in-chapter-11-ninth-circuit/

seven states. These results are consistent with the notion that changes in market leverage and securities issuances are a product of changes in both the value of collateral and debt capacity (Li, Whited and Wu, 2016).

1.5.3 Balance Sheet Expansion: Growth in Firm-Level Covariates

One potential concern with the above findings is that controlling for firm-level covariates does not take into account the effects of changes in the firm's determinants. The key concern here is that the documented "treatment effects" might be attributable to mechanical balance sheet expansion and not to the passage of anti-recharacterization laws. Table [10] reports estimates controlling for changes in covariates and the interaction of these changes with the indicator variable "Law". Models [1&2] document that even after controlling for changes in covariates, the coefficient of the"Law" dummy is still positive and statistically significant at the 1% level.

Additionally, it could be the case that changes in covariates will have a more pronounced effect on changes in market leverage. To address this concern, change in market leverage is the dependent variable in models [3&4]. Consistent with the above results, the coefficient of "Law" is positive and statistically significant at 1% level. The estimates in models [1-4] demonstrate that the positive effect of the state adoption of anti-recharacterization laws on market leverage is robust to controlling for balance sheet expansion.

In models [5&6] equity issuance is the dependent variable. The coefficient of the indicator variable "Law" is negative and statistically significant at the 1% level. The estimates are consistent with those reported in Table [6] above. Observe that the coefficient of change in profitability is negative, which is consistent with Frank and Goyal (2015). Contrastingly, the interaction of changes in profits and the indicator "Law" is positive and statistically significant at 1% level. Observe also that the interaction term between size and the indicator variable "Law" is negative and statistically significant at the 1% level. This results suggest that large firms are less likely to issue equity even after the state adoption of anti-recharacterization laws. Large firms tend to be less financially constrained since they have access to external financing. Intuitively, we would expect that following state adoption of anti-recharacterization laws, financially unconstrained firms would reduce equity issuance. The adoption of laws enhances access to additional debt financing. Additionally, since equity issuance is more costly, unconstrained firms are more likely to substitute away from equity financing.

To address this concern, I sort firms based on financial constraints measure. I employ the Whited-Wu index (2006)- WWI henceforth- as the measure of financial constraints. Table [11] reports estimates in which firms are sorted based on WWI. Firms whose index value is above median are classified as "High"- these firms are more likely to be financial constrained. meanwhile firms below median WWI are classified as

"Low"- these firms are less likely to be financial constrained. As expected, the empirical results in Table [11] support the above conjecture. The results in models [1&3] demonstrate that the negative effect of the adoption of anti-recharacterization laws on equity issuance is mainly driven by financially unconstrained firms. Financially unconstrained firms are more likely to access external debt financing, especially post state adoption of anti-recharacterization laws. There is no evidence that financially constrained firms reduce equity issuance.

1.5.4 Accounting for the Effects of Anti-recharacterization laws on Equity Repurchases

So far, the results demonstrate that firms on average reduce equity issuance following the state adoption of anti-recharacterization laws. The next step is to establish whether the adoption of these laws affects stock repurchases. Anti-recharacterization laws are positively associated with market leverage and debt issuance, implying that firms are more likely not only to reduce equity issuance but might also increase stock repurchases.

Table [12] considers the effect of anti-recharacterization laws on equity repurchases. Equity repurchases are estimated as purchase of common stock (prstkc) scaled by total assets. Models [1&2] report results from regressions of equity repurchase on the indicator variable "Law", controlling for firm size, profitability, MB and tangibility. Columns [3&4]

present estimates controlling for changes in firm size, changes in profitability, changes in MB and changes in tangibility. Models [4&5] control for interaction terms in addition to firm-level controls. The results confirm the above prediction and establish that firms increase stock repurchases after the state adoption of anti-recharacterization laws.

1.5.5 Which Firms Respond More Strongly?

In this section, I explore cross-sectional variation in firms' responses to the adoption of anti-recharacterization laws. The results in Table [2] demonstrate that on average firms increase market leverage following the state adoption of laws. However, financially constrained firms might behave very differently from their unconstrained counterparts (Ershin 2017, Chu 2018). Following state adoption of anti-recharacterization laws, financially unconstrained firms are more likely to reduce costly short-term debt financing and financially constrained firms are less likely to reduce short-term debt. This is because anti-recharacterization laws strengthen creditors' rights, which enhance the value of pledgeable assets in place. As access to external financing impoves, unconstrained firms face lower trade-off costs and are therefore more likely to substitute between market debt and bank debt financing. As such we would expect financially unconstrained firms to reduce costly short-term debt, which tends to be bank financed.

On the other hand, financially constrained firms have improved access

to external financing, but this improved access is conditional on the value of pledgeable assets in place. Financially constrained firms tend to have lower collateral assets in place relative to their unconstrained counterparts. Hence, the improved access to external financing implies that financially constrained firms might increase market leverage but might not reduce costly short-term debt. That is, we would expect to observe imperfect substitutability between market debt and bank debt for financially constrained firms. Overall, following the enactment of anti-recharacterization laws, we expect that unconstrained firms would reduce short-term debt and financially constrained firms would increase market leverage.

In Table [13] firms are sorted based on the Whited-Wu index (2006). Higher index values are associated with higher need for external financing. The dependent variable in models [1&2] is market leverage and the dependent variable in models [3&4] is long-term debt scaled by total assets. In models [5&6] the dependent variable is short-term debt scaled by total assets. The results in Table [13] confirm the conjecture that financially constrained firms increase market leverage and unconstrained firms reduce costly short-term debt financing. As access to debt financing improves, unconstrained firms substitute between market debt and bank debt.

Note also that the easier repossession of pledgeable assets following the enactment of anti-recharacterization laws implies that creditors are

more willing to provide debt financing to financially constrained firms. Overall, the results indicate that following the adoption of anti-recharacterization laws, constrained firms significantly increase market leverage while unconstrained firms significantly reduce short-term debt. The results support the notion that strengthening creditors' rights facilitates lending activities and results in imperfect substitutability between public debt and bank debt. These results are consistent with Chu (2018) finding that "...financially constrained firms value additional debt capacity due to increased ability to repossess collateral."

1.5.6 Accounting for the Effects of the 2008 Financial Crisis

One potential concern is that some of the effects attributable to the state adoption of anti-recharacterization laws might simply be picking up the adverse effects of the 2008 financial crisis. This conjecture is partly because there is quite an overlap between the post-crisis period and the post-adoption period of anti-recharacterization laws. In order to address this concern, I employ a difference-in-difference strategy in which I compare the variable(s) of interest before and after the crisis. The coefficient "After" is a dummy variable that takes the value of "1" for the years after 2008 and zero if otherwise.

Table [14] presents estimates with the dummy variable "After" as an additional control. In models [1&2], I re-examine the effects of

anti-recharacterization laws on market leverage controlling for the effects of the 2008 financial crisis. The results show that the dummy variable "Law" is positively related to market leverage. The effects are statistically significant at the 1% level. In models [3&4], the dependent variable is equity issuance. The coefficient estimate of "Laws" is negatively and statistically significant at the 1% level. Models [5&6] show that the coefficient of "Law" is positive and weakly significant. Observe that both the dummy "After" and the "After" are not significant in model [6]. The result is encouraging as it suggests that the insignificance in model [6] is mostly driven by clustering effect and not because the effect of the financial crisis subsumes the effect of the adoption of the anti-recharacterization laws. Overall, the results in Table [13] demonstrate that the effects of state adoption of anti-recharacterization laws on market leverage and equity issuance is robust to accounting for the effects of the financial crisis.

1.5.7 Accounting for the Availability of Internal Funds

Under the pecking order theory (Myers, 1984), firms should prefer internal financing over external financing. If additional funding is required, firms should first issue market debt before issuing equity. This is partly because firms on average tend to face higher transaction costs in the case of equity and debt financing than using straight cash. The key idea here is that external financing is costly. Indeed, extant literature finds

that firms tend to raise funds only when they are squeezed for cash. McKeon and Denis (2012) document that urgent demand for cash is a significant determinant of debt issuance. Ritter and Huang (2017) find that about 67% of issuers in their sample would have run out of cash by the end of the fiscal year if they had not issued securities. And that immediate need for cash is the most significant predictor of debt issuance. DeAngelo, DeAngelo and Stulz (2010) find that about 63% of firms, in their sample, would have run out of cash in the preceding year if they did not raise external capital. Overall, firms seem to trade-off the benefit of security issuance against the information sensitivity cost(s) associated with security issuance. Hence, ceteris paribus firms with high information asymmetry should have stronger preference for cash financing. In the context of creditors' rights laws, this conjecture implies that firms with significant cash might be less responsive to the state adoption of anti-recharacterization laws.

Additionally, higher cash holdings firms might prefer to pay down existing debt, which might further weaken the "treatment effects" from the adoption of anti-recharacterization laws. Prior research finds that the fraction of pledgeable assets declines with increase and availability of internal funds (Eisfeldt and Rampini, 2009). As such, we would expect a negative relationship between cash and debt capacity. That is, we expect a negative correlation between cash and market leverage, and a negative correlation between cash and debt issuance. The conjecture effectively

implies that firms with higher internal funds are more likely to underreact to the staggered adoption of anti-recharacterization laws.

In Table [15], in addition to controlling for determinants of leverage, cash is also an independent variable in the regression. Cash is defined as cash and cash equivalent market securities (CHE) scaled by total assets. Consistent with the above conjecture, the coefficient estimate of cash is negative across all models. The negative and statistically significant coefficient of cash indicates that internal funds are an important determinant of market leverage and financing activity. Prior literature has documented that firms with internal capital tend to use such funds primarily for debt reduction (Byuon 2008, Denis and McKeon 2012).

In Table [15] panel [B], I test whether high cash holdings firms behave differently from low cash holdings firms after the state adoption of anti-recharacterization laws. The results confirm the notion that firms with high cash prefer or would rather reduce market leverage and reduce debt issuance than firms with low cash. The interaction term "LawxCash" captures the joint effect of cash and adoption of anti-recharacterization laws. In models [1-4], the coefficient estimate of the interaction term is negative and statistically significant at 1% the level. The results demonstrate that firms incorporated in states with anti-recharacterization laws that have high cash holdings decrease market leverage.

Observe also that the interaction effects do not subsume the documented "treatment effects" attributable to the passage of

anti-recharacterization laws. The coefficient estimate of the dummy variable "Law" is positive and statistically significant at the 1% level. In models (7&8), debt issuance is the dependent variable. In this case, the coefficient of the interaction term while negative is not statistically significant, indicating that there is no evidence that firms with high cash reduce debt issuance activity. Overall, the results in Table [15] suggest that cash is an important determinant of financing choice(s). Nevertheless, even after controlling for cash holdings, the effects of anti-recharacterization laws on debt capacity and financing activities is robust.

Firms that tend to hold higher level of cash tend to either increase or retain dividend pauout amount. In general, there some good reasons why we might expect stronger creditor rights protection to impact payout policy. Firstly, Firms have a strong incentive to fund immediate investment outlays in a cost effective manner. Failure to issue dividends is significantly penalized by the market. Secondly, 90% of CFOs agree that there are negative consequences to not paying dividend (Jagannathan, Stephens and Weisbach, 2000). Therefore, it might be the case that since the laws improve access to external financing, firms in adopting states might significantly increase or retain dividend payout. As access to external financing improves, firms in adopting states might prefer to utilize debt financing over reducing dividend payout. This shield the firm against potential adverse actions by shareholders (i.e selling shares). The

empirical evidence presented in the table below support this notion:

1.6 Conclusion

The existing literature has documented contrasting results on the effects of stronger creditors' rights protection on external financing. Some papers find that stronger creditors' rights protection facilitates lending activities while others find that such rights depress secured lending. Most of these works focus on cross-country settings, legal origins and institutional comparisons, and as such suffer from the fact that cross-country differentials are significant enough to generate contradictory results. Hence, the relationship between stronger creditors' rights protection and firms' financing choices is still not well understood.

In this paper, I use the passage of anti-recharacterization laws by seven U.S. states as a quasi-natural experiment. The main motivation behind these laws is to enhance the ability of creditors to extract and repossess collateral during bankruptcy or during financial distress. Using a difference-in-difference methodology, I estimate the causal impacts of anti-recharacterization laws on firms' financing choices and securities issuance. Firstly, I document that for firms incorporated in the adopting states, the passage of anti-recharacterization laws is associated with increase in access to external financing. The laws are positively related to market leverage. I also show that anti-recharacterization laws affect debt

dynamics; firms substitute away from costly short-term debt financing towards long-term debt financing.

Second, I examine the effects of anti-recharacterization laws on firms' financing activities. I show that these laws are positively related to debt issuance and negatively related to equity issuance. These results are more pronounced amongst firms that are proactive issuers of securities. Proactive issuers of debt significantly increase debt issuance while proactive issuers of equity significantly reduce equity issuance. In summary, my results support the notion that stronger creditors' rights protection enhances lending activities and result in more efficient capital markets.

1.7 Figures and Tables

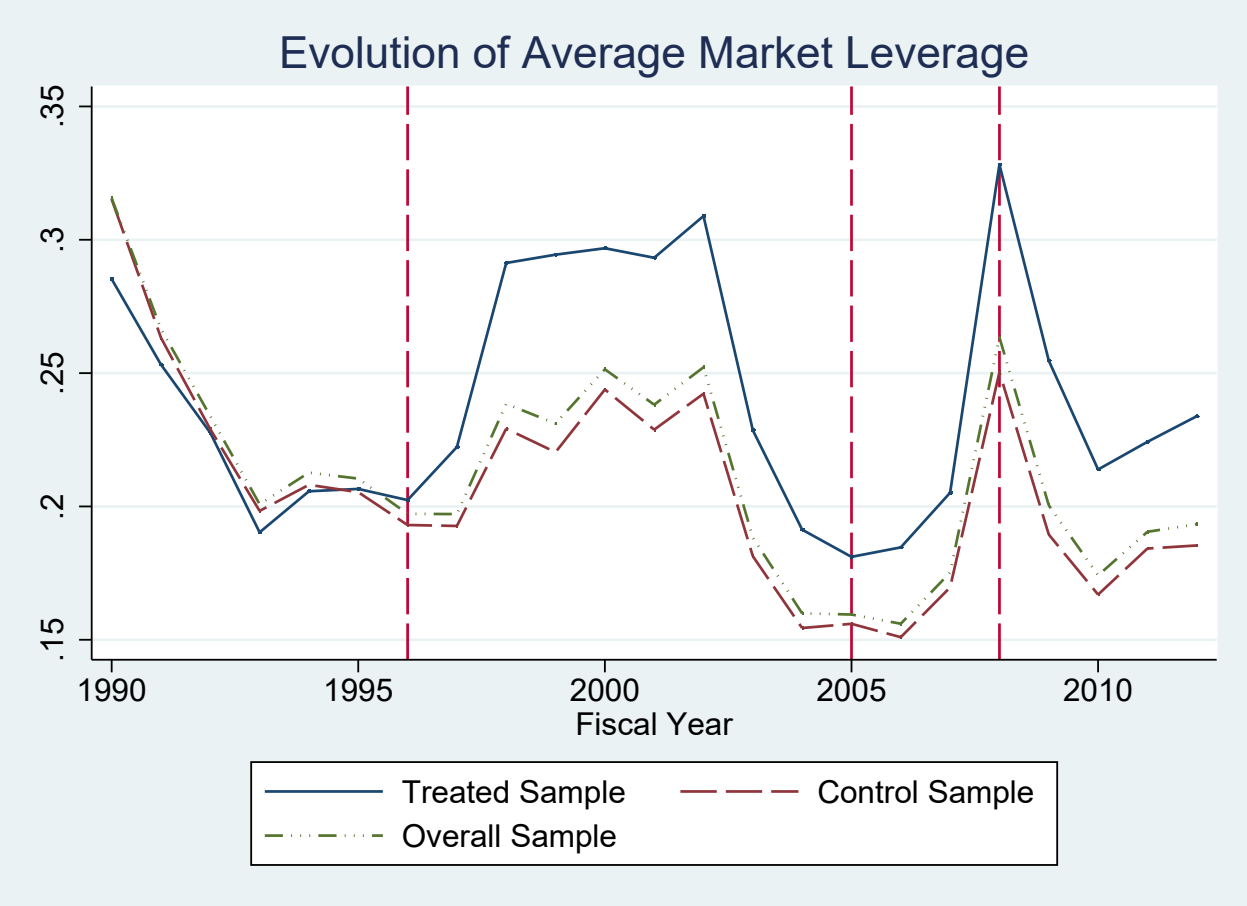


Figure 1.1: Evolution of Average Market Leverage

Table 1: *Summary Statistics*

:The sample comes from the annual Compustat files. The sample period is 1990-2012. I exclude financial firms (SIC 6000-6999) and utilities (SIC 4900-4999). Cash is estimated as cash and marketable securities adjusted by total assets. Investment is CAPX adjusted by total assets. Tangibility is estimated as property, plant and equipment scaled by total assets. Profits is estimated as operation income before depreciation adjusted by total assets. Leverage is estimated as debt in current period liability plus long-term debt scaled by total assets. Networking capital is estimated as networking capital net of cash scaled by total assets.Market leverage is estimated as in Equation [1]. Debt issuance is estimated as issuance of long-term debt(dltis) plus increase in current debt (dlcch). Equity issuance is estimated as sale of common stock. Equity purchase is estimated as the sale of common stock. Dividend dummy equals to 1 if a firm pays dividend in that fiscal year, otherwise it's equal to zero

	Mean	Median	Std. Dev	25^{th}	75^{th}
Summary Statistics:					
Cash	0.204	0.0954	0.247	0.0237	0.299
Ln(assets)	4.56	4.53	2.46	2.91	6.22
MB	2.30	1.52	2.43	1.09	2.45
Investment	0.067	0.039	1.001	0.016	0.0749
Equity Issuance	0.127	0.004	0.382	0.00	0.042
Tangibility	0.265	0.187	0.265	0.077	0.387
Leverage	0.234	0.181	0.231	0.0175	0.3747
Ln(Sale)	4.62	4.51	2.62	2.89	6.30
Profits	-0.056	0.093	1.02	-0.03	0.16
Debt Issuance	0.0701	0.00	0.296	0.00	0.08
Net Leverage	0.029	0.073	0.403	-0.22	0.313
Equity Repurchase	0.0138	0.000	0.0597	0.000	0.0211
Market Leverage	0.21	0.12	0.24	0.01	0.35
Dividend Dummy	0.328	0.000	0.469	0.000	1.000
Net working Capital	-0.283	0.041	25.5	-0.067	0.185
Acquisition Activity	0.089	0.000	9.9	0.000	0.004

TABLE 2A: Creditors Rights and Leverage

:

This table presents results from a regression analysis where the dependent variable is market leverage in columns[1-4]. Market leverage estimation is as in Equation [1] above. The dependent variable is total leverage in columns[5-6]. The explanatory variables: Size is estimated as natural logarithms of total sales. Tangibility, profitability and MB are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)	(5)	(6)
	Market Leverage	Market Leverage	Market Leverage	Market Leverage	Leverage	Leverage
Law	0.0297***	0.0297***	0.0127***	0.0127*	0.0246**	0.0246
	(8.93)	(4.03)	(3.81)	(1.75)	(2.22)	(1.42)
Size			0.0258***	0.0258***	0.0374***	0.0374***
			(43.71)	(22.12)	(19.12)	(3.78)
Tangibility			0.233***	0.233***	0.135***	0.135**
			(42.23)	(19.56)	(7.38)	(2.51)
Profitability			-0.00961***	-0.00961***	-0.426***	-0.426***
			(-9.42)	(-2.70)	(-126.02)	(-2.81)
MB			-0.000284***	-0.000284	0.00191***	0.00191*
			(-9.19)	(-1.17)	(18.68)	(1.92)
Constant	0.212***	0.212***	0.0394***	0.0394***	0.307***	0.307***
	(376.13)	(321.23)	(12.76)	(6.39)	(30.03)	(7.22)
Firm F.E	YES	YES	YES	YES	YES	YES
Clustered Std Errors	NO	YES	NO	YES	NO	YES
Year F.E	NO	YES	NO	YES	NO	YES
N	107,701	107,701	103,650	103,650	103,649	103,649
R^2	0.00162	0.00162	0.0997	0.0997	0.124	0.124

NOTE: t-statistics in parentheses:* p:0.10, ** p:0.05, *** p:0.01

TABLE 2B: Quantile Regression: Market Leverage

:

This table presents results from quantile regression analysis where the dependent variable is market leverage in columns[1-4]. Equation [1] replicates results from Equation [3] in Table [2A]. Columns [2-4] presents estimates from quantile regression analysis. The explanatory variables: Size is estimated as natural logarithms of total sales. Tangibility, profitability and MB are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	Market Levarage	Market Leverage	Market Leverage	Market Leverage
		Quantile	**Regression**	**Estimates**
Law	0.0127*	0.00390***	0.00615**	-0.000517
	(1.75)	(3.85)	(2.23)	(-0.10)
Size	0.0258***	0.00464***	0.0143***	0.0249***
	(22.12)	(10.83)	(73.55)	(38.63)
Tangibility	0.233***	0.171***	0.337***	0.443***
	(19.56)	(45.45)	(81.25)	(65.76)
Profitability	-0.00961***	-0.00791***	-0.0193***	-0.000963
	(-2.70)	(-7.16)	(-12.33)	(-0.27)
MB	-0.000284	-0.00191***	-0.00312***	-0.000941
	(-1.17)	(-3.66)	(-10.30)	(-0.67)
Constant	0.0394***	-0.0181***	-0.00798***	0.0991***
	(6.39)	(-5.66)	(-6.97)	(17.40)
Firm & Year F.E	YES	NO	NO	NO
Clustered Std Errors	YES	NO	NO	NO
Robust Std Errors		YES	YES	YES
Regression Type	FE	**25th%**	**50th%**	**75th%**
N	103,650	103,650	103,650	103,650
R^2	0.0997			
Pseudo R^2		0.056	0.102	0.078

NOTE: t-statistics in parentheses:* p:0.10, ** p:0.05, *** p:0.01

TABLE 3: Creditors Rights and Leverage

:

This table presents results from a regression analysis where the dependent variable is long term debt in columns [1-3]. And the dependent variable is short-term debt in columns [4-6]. The explanatory variables: Size is estimated as natural logarithms of total sales. Tangibility, profitability and MB are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)	(5)	(6)
	LT Debt	LT Debt	LT Debt	ST Debt	ST Debt	ST Debt
Law	0.00575***	0.00601***	0.00601*	-0.00452**	-0.00452**	-0.00452*
	(2.19)	(2.58)	(1.73)	(-2.50)	(-2.50)	(-1.93)
$LTDebt_{t-1}$		0.468***	0.468***			
		(159.49)	(73.94)			
$STDebt_{t-1}$					0.260***	0.260***
					(77.87)	(26.25)
Size	0.0151***	0.0109***	0.0109***	0.00158	0.00332***	0.00332***
	(32.58)	(25.28)	(15.93)	(4.69)	(9.92)	(6.03)
Tangibility	0.170***	0.127***	0.127***	0.0636***	0.0604***	0.0604***
	(39.33)	(32.13)	(17.51)	(20.32)	(19.66)	(11.21)
Profitability	-0.00449***	-0.0105***	-0.0105***	-0.0158***	-0.0190***	-0.0190***
	(-5.61)	(-12.62)	(-3.87)	(-27.25)	(-29.55)	(-4.75)
MB	-0.0000716***	-0.000913***	-0.000913***	-0.000751***	-0.000751***	-0.000751***
	(-2.95)	(-9.48)	(-4.20)	(-10.04)	(-2.01)	(-3.83)
Constant	0.0478***	0.00243	0.00243	0.0358***	0.0123***	0.0123***
	(19.77)	(1.04)	(0.63)	(20.40)	(6.79)	(4.15)
Firm F.E	YES	YES	YES	YES	YES	YES
Clustered Std Errors	NO	NO	YES	NO	NO	YES
Year F.E	NO	NO	YES	NO	NO	YES
N	103,650	96,890	96,890	103,650	96,890	96,890
R^2	0.0284	0.253	0.253	0.0135	0.0789	0.0789

NOTE: t-statistics in parentheses: * p:0.10, ** p:0.05, *** p:0.01

***TABLE 4**: Creditors Rights and Debt Issuance*

This table presents results from a regression analysis where the dependent variable is debt issuance in columns[1-2]. The dependent variable is change in total leverage in columns[3-4]. The explanatory variables: Size is estimated as natural logarithms of total sales. All explanatory variables are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	Debt Issuance	Debt Issuance	$\Delta Leverage_{t,t-1}$	$\Delta Leverage_{t,t-1}$
Law	0.0189**	0.0189*	0.0117***	0.0117***
	(2.41)	(1.65)	(3.69)	(3.74)
Size	0.0149***	0.0149***	0.0185***	0.0185***
	(10.30)	(3.78)	(28.56)	(17.47)
Cash Flow	0.00417***	0.00417**	-0.0179***	-0.0179***
	(5.90)	(2.11)	(-13.15)	(-3.90)
NWC	-0.00352	-0.00352	-0.0138***	-0.0138*
	(-0.92)	(-0.24)	(-11.51)	(-1.65)
Investment	0.169***	0.169***	0.197***	0.197***
	(10.00)	(3.19)	(22.59)	(11.10)
Profitability	-0.0109***	-0.0109*	-0.00622***	-0.00622
	(-4.87)	(-1.67)	(-3.37)	(-0.72)
Tangibility	0.0137	0.0137	0.0920***	0.0920***
	(1.04)	(0.60)	(16.01)	(11.08)
MB	0.00283***	0.00283	-0.00176***	-0.00176***
	(14.20)	(1.07)	(-11.56)	(-3.73)
Market Cap	-0.00731***	-0.00731	-0.0131***	-0.0131***
	(-5.74)	(-1.64)	(-23.01)	(-13.05)
Acquisitions	0.000421*	0.000421	0.000422***	0.000422
	(1.68)	(0.97)	(2.71)	(0.62)
Dividend Dummy	0.00420	0.00420	-0.0118***	-0.0118***
	(1.10)	(0.87)	(-7.35)	(-6.06)
R&D	0.0195***	0.0195**	-0.000798	-0.000798
	(3.11)	(1.97)	(-0.28)	(-0.25)
Constant	0.00198	0.00198	-0.0293***	-0.0293***
	(0.26)	(0.18)	(-8.70)	(-6.25)
Firm F.E	YES	YES	YES	YES
Clustered Std. Errors	NO	YES	NO	YES
Year F.E	NO	YES	NO	YES
N	47,304	47,304	90,528	90,528
R^2	0.0123	0.0123	0.0355	0.0355

***TABLE 5A**: Active vs Passive Debt Issuers*

	(1)	(2)	(3)	(4)
	Debt Issuance	Debt Issuance	Debt Issuance	Debt Issuance
		5%	**of Assets**	
	Active	Passive	Active	Passive
Law	0.0522**	-0.00484	0.0522*	-0.00484
	(2.41)	(-1.00)	(1.70)	(-1.19)
Size	0.0168***	-0.00125	0.0168**	-0.00125
	(3.36)	(-1.49)	(2.38)	(-0.89)
Profitability	-0.0308***	0.00401*	-0.0308**	0.00401
	(-3.94)	(1.81)	(-2.00)	(0.29)
Cash Flow	0.00217*	0.00512***	0.00217	0.00512
	(1.83)	(2.82)	(1.42)	(0.40)
Acquisitions	0.00580***	-0.0000926	0.00580	-0.0000926*
	(4.15)	(-0.75)	(0.88)	(-1.71)
MB	0.00929***	-0.00288***	0.00929***	-0.00288**
	(18.89)	(-16.27)	(4.02)	(-1.97)
Dividend Dummy	0.0115	0.000302	0.0115	0.000302
	(1.04)	(0.13)	(0.81)	(0.15)
Constant	0.218***	-0.0400***	0.218***	-0.0400***
	(8.63)	(-9.24)	(6.85)	(-6.39)
Other Controls	YES	YES	YES	YES
Firm F.E	YES	YES	YES	YES
Clustered std Errors	NO	NO	YES	YES
Year F.E	NO	NO	YES	YES
N	14,272	33,032	14,272	33,032
R^2	0.0643	0.0290	0.0643	0.0290

***TABLE 5B**: Active vs Passive Debt Issuers*

	(5)	(6)	(7)	(8)
	Debt Issuance	Debt Issuance	Debt Issuance	Debt Issuance
	3%	**of Assets**		
	Active	Passive	Active	Passive
Law	0.0450**	-0.00304	0.0450*	-0.00304
	(2.50)	(-0.57)	(1.85)	(-0.68)
Size	0.0154***	-0.00200**	0.0154**	-0.00200
	(3.59)	(-2.24)	(2.15)	(-1.40)
Profitability	-0.0417***	0.00717***	-0.0417**	0.00717
	(-6.01)	(3.08)	(-2.25)	(0.52)
Cash Flow	0.00292***	0.00108	0.00292**	0.00108
	(2.67)	(0.56)	(2.03)	(0.08)
Acquisitions	0.00588***	-0.000101	0.00588	-0.000101*
	(4.49)	(-0.80)	(0.91)	(-1.86)
MB	0.00684***	-0.00307***	0.00684**	-0.00307**
	(17.07)	(-16.24)	(2.11)	(-1.98)
Dividend Dummy	0.00860	0.000157	0.00860	0.000157
	(0.91)	(0.06)	(0.70)	(0.08)
Constant	0.178***	-0.0427***	0.178***	-0.0427***
	(8.23)	(-9.26)	(6.08)	(-6.59)
Other Controls	YES	YES	YES	YES
Firm F.E	YES	YES	YES	YES
Clustered std Errors	NO	NO	YES	YES
Year F.E	NO	NO	YES	YES
N	16,802	30,502	16,802	30,502
R^2	0.0490	0.0293	0.0490	0.0293

***Table 6**: Creditors Rights and Equity Issuance*

	(1)	(2)	(3)	(4)
Table 6	Equity Issuance	Equity Issuance	Equity Issuance	Equity Issuance
Law	-0.0195***	-0.0195***	-0.0264***	-0.0264***
	(-3.75)	(-2.94)	(-5.10)	(-4.20)
Size	-0.0545***	-0.0545***	-0.0775***	-0.0775***
	(-59.68)	(-19.86)	(-76.56)	(-24.05)
Profits	-0.149***	-0.149***	-0.134***	-0.134***
	(-95.24)	(-4.96)	(-70.85)	(-3.64)
Tangibility	-0.197***	-0.197***	-0.182***	-0.182***
	(-23.15)	(-11.40)	(-19.95)	(-6.16)
MB	0.000761***	0.000761	0.00399***	0.00399**
	(16.06)	(1.16)	(28.00)	(2.25)
Cash Flow			-0.00556***	-0.00556*
			(-8.54)	(-1.86)
NWC			-0.00576***	-0.00576
			(-3.08)	(-0.45)
Investment			0.230***	0.230*
			(17.15)	(1.80)
Market Cap			0.0521***	0.0521***
			(58.36)	(16.73)
Acquisitions			-0.0000402	-0.0000402
			(-0.16)	(-0.09)
Dividend Dummy			0.0707***	0.0707***
			(27.01)	(20.21)
R&D			0.0189***	0.0189**
			(4.08)	(2.57)
Constant	0.405***	0.405***	0.205***	0.205***
	(85.22)	(30.01)	(35.41)	(14.70)
Firm F.E	YES	YES	YES	YES
Year F.E	NO	YES	NO	YES
Clustered Std. Errors	NO	YES	NO	YES
N	101,879	101,879	94,952	94,952
R^2	0.151	0.151	0.218	0.218

TABLE 7: Active vs Passive Equity Issuers

This table presents results from a regression analysis where the dependent variable is equity issuance. Firms are sorted into either active or passive issuers. A firm is classified as active if it issue equity greater than **5% of total assets**. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	EquityIssuance	EquityIssuance	EquityIssuance	EquityIssuance
Equity Issuers	**Active**	**Passive**	**Active**	**Passive**
Law	-0.103***	-0.000290	-0.103***	-0.000290
	(-4.18)	(-1.30)	(-4.43)	(-0.85)
Size	-0.0947***	-0.000314***	-0.0947***	-0.000314***
	(-31.49)	(-6.20)	(-16.55)	(-2.95)
Profits	-0.174***	-0.000258***	-0.174***	-0.000258
	(-24.48)	(-3.26)	(-3.25)	(-1.32)
Tangibility	-0.467***	0.000261	-0.467***	0.000261
	(-13.57)	(0.74)	(-5.98)	(0.61)
Cash Flow	-0.0575***	-0.0000241*	-0.0575**	-0.0000241**
	(-11.23)	(-1.66)	(-2.09)	(-2.20)
NWC	0.0172***	-0.000347***	0.0172	-0.000347
	(3.78)	(-4.51)	(0.65)	(-1.38)
Investment	0.536***	0.000251	0.536***	0.000251
	(13.91)	(0.42)	(3.03)	(0.35)
Acquisitions	0.000239	-0.0000255	0.000239	-0.0000255
	(0.45)	(-1.48)	(0.60)	(-1.38)
MB	0.00106***	0.0000291***	0.00106	0.0000291
	(3.65)	(3.10)	(0.67)	(0.48)
Market Cap	0.0520***	0.000124***	0.0520***	0.000124***
	(14.50)	(3.29)	(8.25)	(2.91)
Dividend Dummy	0.0788***	-0.0000476	0.0788***	-0.0000476
	(8.07)	(-0.40)	(7.96)	(-0.74)
R&D	0.0127	-0.000636***	0.0127	-0.000636**
	(0.67)	(-3.51)	(0.58)	(-2.18)
Constant	0.472***	0.00149***	0.472***	0.00149***
	(22.77)	(6.64)	(14.47)	(3.26)
Firm F.E	YES	YES	YES	YES
Clustered Std Errors	NO	NO	YES	YES
Year F.E	NO	NO	YES	YES
N	21,826	28,730	21,826	28,730
R^2	0.328	0.00645	0.328	0.00645

***TABLE 8**: Placebo Tests*

	(1)	(2)	(3)	(4)	(5)	(6)
	Market Lev	EquityIssuance	Debt Issuance	Debt Issuance	ST Debt	LT Debt
Placebo Law	0.0129	-0.00875	-0.00128	-0.00128	-0.00228	0.00963
	(1.23)	(-1.17)	(-0.11)	(-0.14)	(-0.57)	(1.18)
Size	0.0261***	-0.0550***	0.00961***	0.00961***	0.00142**	0.0152***
	(22.60)	(-20.27)	(7.57)	(5.27)	(2.30)	(15.50)
Tangibility	0.233***	-0.197***	0.0562***	0.0562***	0.0639***	0.170***
	(19.54)	(-11.34)	(4.75)	(2.99)	(10.04)	(16.72)
Profits	-0.00969***	-0.149***	-0.0167***	-0.0167*	-0.0157***	-0.00452***
	(-2.72)	(-4.96)	(-8.94)	(-1.92)	(-5.37)	(-2.79)
MB	-0.000284	0.000761	0.000129***	0.000129	-0.0000353	-0.0000715
	(-1.17)	(1.16)	(2.98)	(0.65)	(-1.00)	(-1.18)
Constant	0.0392***	0.405***	0.00943	0.00943	0.0359***	0.0477***
	(6.37)	(1.49)	(1.00)	(11.16)	(9.19)	
Firm F.E	YES	YES	YES	YES	YES	YES
Clustered Std Errors	YES	YES	NO	YES	YES	YES
Year F.E	YES	NO	YES	YES	YES	YES
N	103,650	101,879	50,591	50,591	103,650	103,650
R^2	0.0410	0.151	0.00383	0.00383	0.0134	0.0284

TABLE 9[A]: Accounting for the three states that passed the laws before 2003

:

This table presents results from a regression analysis where the dependent variable is market leverage in columns[1-2]. The dependent variable is equity issuance in columns[3-4]. The dependent variable is debt issuance in models[5-6]. $Law_3states$ is a dummy variable equals to "1" if a firm is incorporated in, Texas and Louisiana after 1997 and Alabama after 2002. Size is estimated as natural logarithms of total sales. Tangibility, profitability and MB are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported

	(1)	(2)	(3)	(4)	(5)	(6)
	Market Leverage	Market Leverage	EquityIssuance	EquityIssuance	DebtIssuance	DebtIssuance
$Law_3states$	0.0238***	0.0238***	-0.0184***	-0.0184**	0.0239***	0.0239*
	(6.16)	(2.89)	(-3.07)	(-2.31)	(2.71)	(1.76)
Size	0.0257***	0.0257***	-0.0547***	-0.0547***	0.00928***	0.00928***
	(43.54)	(22.08)	(-59.95)	(-19.96)	(7.29)	(5.13)
Tangibility	0.232***	0.232***	-0.197***	-0.197***	0.0567***	0.0567***
	(42.21)	(19.51)	(-23.08)	(-11.37)	(4.80)	(3.03)
Profits	-0.00955***	-0.00955***	-0.149***	-0.149***	-0.0166***	-0.0166*
	(-9.36)	(-2.69)	(-95.22)	(-4.96)	(-8.86)	(-1.91)
MB	-0.000284***	-0.000284	0.000761***	0.000761	0.000129***	0.000129
	(-9.19)	(-1.17)	(16.06)	(1.16)	(2.98)	(0.65)
Constant	0.0395***	0.0395***	0.405***	0.405***	0.00920	0.00920
	(12.79)	(6.41)	(85.25)	(30.03)	(1.46)	(0.97)
Firm F.E & Year F.E	YES	YES	YES	YES	YES	YES
Clustered Std. Errors	NO	YES	NO	YES	NO	YES
N	103,650	103,650	101,879	101,879	50,591	50,591
R^2	0.0998	0.0998	0.247	0.247	0.0109	0.0109

NOTE: t- statistics in parentheses* p:0.10, ** p:0.05, *** p:0.01

TABLE 9[B]: Accounting for the three states that passed the laws before 2003

:This table presents results from a regression analysis where firms are sorted into **active vs passive issuers**. The dependent variable is equity issuance in columns[1-2]. The dependent variable is debt issuance in models[3-4]. A firm is classified as "active issuer" if it issue more than 5% of assets in fiscal year- otherwise it is passive . Within R^2 is reported

	(1)	(2)	(3)	(4)
	EquityIssuance	EquityIssuance	DebtIssuance	DebtIssuance
ISSUERS	**Active**	**Passive**	**Active**	**Passive**
$Law_3states$	-0.0984***	0.0000944	0.0715*	-0.00659
	(-3.91)	(1.05)	(1.88)	(-1.26)
Size	-0.0950***	-0.000323***	0.0171**	-0.00144
	(-16.65)	(-3.08)	(2.42)	(-1.01)
Tangibility	-0.464***	0.000271	-0.178***	0.0217
	(-5.95)	(0.63)	(-3.49)	(1.29)
Profits	-0.174***	-0.000256	-0.0323**	0.00425
	(-3.25)	(-1.32)	(-2.05)	(0.31)
MB	0.00106	0.0000291	0.00930***	-0.00288**
	(0.67)	(0.48)	(4.06)	(-1.97)
Cash Flow	-0.0575**	-0.0000240**	0.00212	0.00505
	(-2.09)	(-2.19)	(1.40)	(0.40)
NWC	0.0172	-0.000342	-0.0697**	0.0190
	(0.65)	(-1.36)	(-2.28)	(1.26)
Investment	0.537***	0.000254	0.0677	0.00944
	(3.03)	(0.36)	(0.93)	(0.48)
Acquisitions	0.000228	-0.0000260	0.00582	-0.0000948*
	(0.57)	(-1.41)	(0.89)	(-1.77)
Market Cap	0.0520***	0.000123***	-0.0238***	0.00823***
	(8.24)	(2.90)	(-3.60)	(4.24)
Dividend Dummy	0.0791***	-0.0000428	0.0112	0.000253
	(7.98)	(-0.67)	(0.79)	(0.13)
R&D	0.0103	-0.000636**	0.0291	0.00448
	(0.47)	(-2.18)	(1.35)	(1.16)
Constant	0.473***	0.00149***	0.274***	-0.0443***
	(14.50)	(3.27)	(7.44)	(-5.58)
Firm F.E & Year	YES	YES	YES	YES
Clustered Std Errors	YES	YES	YES	YES
N	21,826	28,730	14,269	33,001
R^2	0.328	0.00638	0.0668	0.0293

TABLE 10: *Accounting for growth rates in Covariates:Balance Sheet Expansion*

:

This table presents results from a regression analysis where the dependent variable is market leverage in columns[1-2]. The dependent variable is equity issuance in columns[3-4]. The dependent variable is debt issuance in models[5-6]. Size is estimated as natural logarithms of total sales. Tangibility, profitability and MB are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported

	(1)	(2)	(3)	(4)	(5)	(6)
	Mkt lev	Mkt Lev	$\Delta Mktlev_{t,t-1}$	$\Delta Mktlev_{t,t-1}$	Equity Issuance	EquityIssuance
Law	0.0219***	0.0219***	0.0163***	0.0163***	-0.0130***	-0.0130***
	(6.13)	(2.83)	(5.06)	(5.63)	(-2.80)	(-2.60)
$\Delta size_{t,t-1}$xLaw	-0.00243	-0.00243	0.000730	0.000730	-0.0237***	-0.0237**
	(-0.73)	(-0.41)	(0.24)	(0.17)	(-5.49)	(-2.20)
$\Delta size_{t,t-1}$	-0.0178***	-0.0178***	0.0135***	0.0135***	0.0159***	0.0159***
	(-16.60)	(-11.99)	(13.82)	(9.03)	(11.49)	(4.69)
$\Delta tang_{t,t-1}$xLaw	0.0457**	0.0457	0.0204	0.0204	0.170***	0.170***
	(2.02)	(1.50)	(1.00)	(0.52)	(5.83)	(4.46)
$\Delta profits_{t,t-1}$xLaw	-0.000897	-0.000897	0.00702***	0.00702	0.0302***	0.0302*
	(-0.41)	(-0.47)	(2.64)	(0.93)	(10.74)	(1.70)
$\Delta MB_{t,t-1}$xLaw	-0.000141	-0.000141	0.00109***	0.00109	0.00126***	0.00126
	(-0.61)	(-0.41)	(4.54)	(1.10)	(4.22)	(1.21)
$\Delta profits_{t,t-1}$	-0.00208***	-0.00208***	-0.0138***	-0.0138***	-0.0227***	-0.0227
	(-3.17)	(-3.46)	(-12.42)	(-3.75)	(-26.98)	(-1.42)
$\Delta tang_{t,t-1}$	0.0638***	0.0638***	0.209***	0.209***	-0.260***	-0.260***
	(8.18)	(6.33)	(29.66)	(17.08)	(-25.78)	(-12.39)
$\Delta MB_{t,t-1}$	-0.000132***	-0.000132**	-0.00229***	-0.00229***	-0.00129***	-0.00129
	(-2.77)	(-2.09)	(-23.17)	(-4.23)	(-21.20)	(-1.50)
Constant	0.222***	0.222***	0.00649***	0.00649***	0.0701***	0.0701***
	(359.64)	(300.98)	(11.71)	(19.10)	(87.71)	(98.32)
Firm F.E & Year F.E	YES	YES	YES	YES	YES	YES
Clustered Std. Errors	NO	YES	NO	YES	NO	YES
N	90,149	90,149	90,125	90,125	88,582	88,582
R^2	0.00593	0.00593	0.0254	0.0254	0.0175	0.0175

***TABLE 11**: Equity Issuance: Constrained vs. Unconstrained Firms*

:

This table presents results from a regression analysis where the dependent variable is equity issuance. Firm are sorted into low vs high based on level of financial constraints- Whited-Wu Index. Size is estimated as natural logarithms of total sales. Tangibility, profitability and MB are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported

	(1)	(2)	(3)	(4)
	EquityIssuance	EquityIssuance	EquityIssuance	EquityIssuance
	Unconstrained	**Constrained**	**Unconstrained**	**Constrained**
Whited-Wu Index	**LOW**	**HIGH**	**LOW**	**HIGH**
Law	-0.00940***	-0.0138	-0.00940***	-0.0138
	(-3.12)	(-1.32)	(-2.85)	(-1.26)
$\Delta Size_{t,t-1}$xLaw	-0.0378***	-0.0338***	-0.0378***	-0.0338*
	(-7.91)	(-4.22)	(-4.04)	(-1.86)
$\Delta Size_{t,t-1}$	0.0593***	0.0126***	0.0593***	0.0126**
	(36.15)	(5.06)	(11.55)	(2.48)
$\Delta Profits_{t,t-1}$xLaw	0.00423	0.0308***	0.00423	0.0308*
	(0.40)	(7.70)	(0.25)	(1.68)
$\Delta Profits_{t,t-1}$	-0.0207***	-0.0224***	-0.0207	-0.0224
	(-4.77)	(-18.34)	(-1.45)	(-1.37)
$\Delta Tang_{t,t-1}$xLaw	0.169***	0.199***	0.169***	0.199***
	(7.27)	(3.77)	(5.10)	(3.27)
$\Delta Tang_{t,t-1}$	-0.259***	-0.280***	-0.259***	-0.280***
	(-30.20)	(-16.01)	(-16.40)	(-9.33)
$\Delta MB_{t,t-1}$xLaw	0.000869	0.00130***	0.000869	0.00130
	(0.67)	(3.08)	(0.51)	(1.21)
$\Delta MB_{t,t-1}$	-0.00101***	-0.00128***	-0.00101*	-0.00128
	(-5.23)	(-14.62)	(-1.88)	(-1.44)
Constant	0.0263***	0.103***	0.0263***	0.103***
	(39.99)	(64.71)	(19.32)	(81.39)
Firm F.E	YES	YES	YES	YES
Clustered Std. Errors	NO	NO	YES	YES
Year F.E	NO	NO	YES	YES
N	45,262	43,320	45,262	43,320
R^s	0.0594	0.0162	0.0594	0.0162

TABLE 12: Equity Repurchases

:This table presents results from a regression analysis where the dependent variable is equity repurchase. All estimation includes firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported

	(1)	(2)	(3)	(4)	(5)	(6)
	EquityRep	EquityRep	EquityRep	EquityRep	EquityRep	EquityRep
Law	0.00515***	0.00515***	0.00883***	0.00883***	0.00870***	0.00870***
	(4.37)	(3.28)	(7.23)	(5.96)	(7.11)	(5.82)
Size	0.00273***	0.00273***				
	(12.73)	(9.17)				
Tangibility	-0.00260	-0.00260				
	(-1.33)	(-1.11)				
Profits	0.000279	0.000279				
	(0.75)	(0.70)				
MB	0.00000969	0.00000969				
	(0.92)	(1.02)				
$\Delta size_{t,t-1}$			-0.00302***	-0.00302***	-0.00321***	-0.00321***
			(-8.35)	(-7.48)	(-8.38)	(-7.49)
$\Delta Profit_{t,t-1}$			0.000150	0.000150	0.000172	0.000172*
			(0.68)	(1.62)	(0.77)	(1.81)
$\Delta Tang_{t,t-1}$			0.0302***	0.0302***	0.0293***	0.0293***
			(11.88)	(10.08)	(10.84)	(9.67)
$\Delta MB_{t,t-1}$			0.00000592	0.00000592	0.00000766	0.00000766
			(0.37)	(0.90)	(0.47)	(1.16)
$\Delta size_{t,t-1}$xLaw					0.00176	0.00176
					(1.50)	(1.38)
$\Delta Tang_{t,t-1}$xLaw					0.00712	0.00712
					(0.90)	(0.67)
$\Delta profit_{t,t-1}$xLaw					-0.000332	-0.000332
					(-0.46)	(-0.66)
$\Delta MB_{t,t-1}$xLaw					-0.0000416	-0.0000416
					(-0.54)	(-0.77)
Constant	0.00237**	0.00237	0.0148***	0.0148***	0.0148***	0.0148***
	(2.10)	(1.51)	(69.99)	(102.35)	(69.98)	(101.21)
Firm F.E & Year F.E	YES	YES	YES	YES	YES	YES
Clustered Std. Errors	NO	YES	NO	YES	NO	YES
N	95,246	95,246	82,998	82,998	82,998	82,998
R^2	0.00255	0.00255	0.00355	0.00355	0.00360	0.00360

TABLE 13: Financial Constraints and Leverage

This table presents results from a regression analysis where the dependent variable is market leverage in columns[1-2]. The dependent variable is long-term debt in columns[3-4]. The dependent variable is short-term debt in models[5-6]. Within R^2 is reported

	(1)	(2)	(3)	(4)	(5)	(6)
	Market Leverage	Market Leverage	LT Debt	LT Debt	ST Debt	ST Debt
TABLE 13:	**Unconstrained**	**Constrained**	**Unconstrained**	**Constrained**	**Unconstrained**	**Constrained**
Whited-Wu Index	**LOW**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Law	-0.00687	0.0377***	-0.00847	0.0117	-0.00539**	-0.00286
	(-1.08)	(4.19)	(-1.24)	(1.59)	(-2.12)	(-0.53)
Size	0.129***	0.0509***	0.0441***	0.0128***	0.00811***	0.00954***
	(42.63)	(29.69)	(19.20)	(9.88)	(6.18)	(9.73)
Tangibility	0.0796***	0.173***	0.136***	0.185***	0.00796	0.0488***
	(4.44)	(12.10)	(7.77)	(15.39)	(1.09)	(5.01)
MB	0.0116***	0.000929***	0.00177***	-0.0000807	0.000706**	0.000104
	(13.15)	(3.81)	(3.49)	(-0.81)	(2.46)	(0.98)
Profits	-0.181***	0.0172***	-0.172***	0.00187	0.0653*	0.00848
	(-6.05)	(4.72)	(-12.00)	(0.69)	(1.84)	(1.39)
Cash Flow	-0.0421**	-0.00708***	0.0145	-0.00493**	-0.0666**	-0.00697
	(-1.96)	(-2.94)	(1.61)	(-2.35)	(-2.10)	(-1.35)
NWC	-0.0131	-0.0112*	0.0664***	0.0101**	-0.112***	-0.0431*
	(-0.66)	(-1.92)	(3.52)	(2.08)	(-3.00)	(-1.88)
Capx	-0.132***	-0.122***	-0.0590***	-0.0269**	-0.00248	-0.0263
	(-6.99)	(-3.32)	(-2.89)	(-2.05)	(-0.25)	(-1.26)
Acquisitions	0.0411***	0.000641***	0.0372***	0.000130	0.000881	-0.0000523
	(6.97)	(3.03)	(4.86)	(0.69)	(0.77)	(-0.70)
Market Cap	-0.126***	-0.0894***	-0.0275***	-0.00638***	-0.0150***	-0.0213***
	(-42.39)	(-51.91)	(-13.87)	(-5.44)	(-12.25)	(-16.00)
Dividend Dummy	-0.00221	-0.00281	-0.00666**	-0.00293	0.000826	0.000961
	(-0.78)	(-0.83)	(-2.24)	(-0.98)	(0.71)	(0.43)
R&D	0.0000463	-0.00608	-0.00440	-0.000897	-0.00419	-0.00812*
	(0.01)	(-0.95)	(-0.65)	(-0.19)	(-1.56)	(-1.90)
Constant	0.178***	0.335***	0.0619***	0.0754***	0.0859***	0.113***
	(14.33)	(43.13)	(5.21)	(11.80)	(12.51)	(19.26)
Firm F.E & Year F.E	YES	YES	YES	YES	YES	YES
Clustered Std Errors	YES	YES	YES	YES	YES	YES
N	46,084	50,358	46,084	50,358	46,084	50,358
R^2	0.462	0.331	0.0865	0.0348	0.149	0.108

***TABLE 14**: Accounting for the Effects of the 2008 Financial Crisis*

	(1)	(2)	(3)	(4)	(5)	(6)
Table 14:	Market Leverage	Market Leverage	Equity Issuance	Equity Issuance	Debt Issuance	Debt Issuance
Law	0.0285***	0.0285***	-0.0242***	-0.0242***	0.0182**	0.0182
	(10.00)	(4.48)	(-4.66)	(-3.93)	(2.32)	(1.60)
After	0.00698***	0.00698***	-0.0149***	-0.0149***	0.00591*	0.00591
	(5.14)	(2.69)	(-6.03)	(-4.04)	(1.76)	(0.92)
Size	0.0690***	0.0690***	-0.0759***	-0.0759***	0.0141***	0.0141***
	(119.90)	(41.84)	(-72.61)	(-22.72)	(9.46)	(3.64)
Tangibility	0.153***	0.153***	-0.187***	-0.187***	0.0156	0.0156
	(30.26)	(12.00)	(-20.35)	(-6.32)	(1.18)	(0.68)
Profits	0.00341***	0.00341	-0.135***	-0.135***	-0.0103***	-0.0103
	(3.25)	(1.19)	(-71.06)	(-3.64)	(-4.61)	(-1.60)
MB	0.00125***	0.00125***	0.00398***	0.00398**	0.00284***	0.00284
	(15.88)	(3.62)	(27.89)	(2.24)	(14.25)	(1.07)
Cash Flow	-0.000661*	-0.000661	-0.00555***	-0.00555*	0.00418***	0.00418**
	(-1.83)	(-1.00)	(-8.52)	(-1.85)	(5.92)	(2.13)
NWC	-0.0110***	-0.0110	-0.00599***	-0.00599	-0.00292	-0.00292
	(-10.57)	(-1.52)	(-3.20)	(-0.46)	(-0.76)	(-0.20)
CAPX	-0.157***	-0.157***	0.226***	0.226*	0.164***	0.164***
	(-21.14)	(-4.88)	(16.84)	(1.75)	(9.23)	(2.97)
Acquisitions	0.00111***	0.00111***	-0.0000250	-0.0000250	0.000417*	0.000417
	(7.85)	(2.78)	(-0.10)	(-0.06)	(1.66)	(0.96)
Market Cap	-0.0962***	-0.0962***	0.0518***	0.0518***	-0.00696***	-0.00696
	(-195.59)	(-66.66)	(57.97)	(16.79)	(-5.40)	(-1.56)
Dividend Dummy	-0.00113	-0.00113	0.0708***	0.0708***	0.00399	0.00399
	(-0.78)	(-0.46)	(27.05)	(20.25)	(1.05)	(0.83)
R&D	-0.000845	-0.000845	0.0193***	0.0193***	0.0194***	0.0194**
	(-0.33)	(-0.17)	(4.17)	(2.65)	(3.09)	(1.96)
Constant	0.314***	0.314***	0.203***	0.203***	-0.000375	-0.000375
	(98.18)	(42.13)	(34.90)	(14.22)	(-0.05)	(-0.03)
Firm F.E & Year F.E	YES	YES	YES	YES	YES	YES
Clustered Std Errors	NO	YES	NO	YES	NO	YES
N	96,442	96,442	94,952	94,952	47,270	47,270
R^2	0.361	0.361	0.218	0.218	0.0124	0.0124

TABLE 15[A]: Accounting for the Effects of the Internal Capital

:This table presents results from a regression analysis where the dependent variable is market leverage in columns[1-2]. The dependent variable is equity issuance in columns[3-4]. The dependent variable is debt issuance in models[5-6]. All estimation includes firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported

	(1)	(2)	(3)	(4)	(5)	(6)
	Market Lev	Market Lev	EquityIssuance	EquityIssuance	Debt Issuance	Debt Issuance
Law	0.0302***	0.0302***	-0.0289***	-0.0289***	0.0195**	0.0195*
	(10.67)	(4.75)	(-5.68)	(-4.54)	(2.49)	(1.72)
Cash	-0.0884***	-0.0884***	0.357***	0.357***	-0.103***	-0.103***
	(-23.39)	(-13.52)	(52.72)	(22.25)	(-11.38)	(-8.81)
Size	0.0655***	0.0655***	-0.0601***	-0.0601***	0.00953***	0.00953**
	(111.80)	(39.80)	(-57.25)	(-17.58)	(6.30)	(2.36)
Tangibility	0.111***	0.111***	-0.0234**	-0.0234	-0.0382***	-0.0382*
	(21.07)	(8.33)	(-2.47)	(-0.80)	(-2.74)	(-1.67)
Profits	0.00442***	0.00442	-0.139***	-0.139***	-0.00896***	-0.00896
	(4.22)	(1.53)	(-74.62)	(-3.69)	(-4.00)	(-1.40)
MB	0.00126***	0.00126***	0.00394***	0.00394**	0.00282***	0.00282
	(15.98)	(3.63)	(28.13)	(2.22)	(14.16)	(1.06)
Cash Flow	-0.000679*	-0.000679	-0.00546***	-0.00546*	0.00407***	0.00407**
	(-1.89)	(-1.02)	(-8.53)	(-1.80)	(5.77)	(2.08)
NWC	-0.0122***	-0.0122	-0.00127	-0.00127	-0.00599	-0.00599
	(-11.79)	(-1.59)	(-0.69)	(-0.10)	(-1.56)	(-0.41)
Capx	-0.161***	-0.161***	0.241***	0.241*	0.159***	0.159***
	(-21.82)	(-4.94)	(18.22)	(1.89)	(8.94)	(2.95)
Acquisitions	0.00106***	0.00106***	0.000200	0.000200	0.000370	0.000370
	(7.48)	(2.84)	(0.79)	(0.62)	(1.48)	(0.88)
Market Cap	-0.0939***	-0.0939***	0.0425***	0.0425***	-0.00395***	-0.00395
	(-187.84)	(-64.66)	(47.31)	(14.09)	(-3.01)	(-0.87)
Dividend Dummy	-0.000595	-0.000595	0.0688***	0.0688***	0.00450	0.00450
	(-0.41)	(-0.24)	(26.70)	(19.65)	(1.18)	(0.93)
R&D	0.000504	0.000504	0.0143***	0.0143*	0.0198***	0.0198**
	(0.20)	(0.10)	(3.14)	(1.89)	(3.17)	(2.02)
Constant	0.349***	0.349***	0.0608***	0.0608***	0.0417***	0.0417***
	(98.80)	(43.05)	(9.61)	(3.55)	(4.68)	(3.17)
Firm F.E & Year F.E	YES	YES	YES	YES	YES	YES
Clustered Std Errors	NO	YES	NO	YES	NO	YES
N	96,442	96,442	94,952	94,952	47,270	47,270
R^2	0.365	0.365	0.243	0.243	0.0156	0.0156

***TABLE 15[B]**: Accounting for the Effects of the Internal Capital*

Table 15B	(1)	(2)	(3)	(4)	(5)	(6)
	Market Lev	Market Lev	Market Lev	Debt Issuance	Debt Issuance	Debt Issuance
Law	0.0302***	0.0398***	0.0398***	0.0195*	0.0257***	0.0257*
	(10.67)	(5.77)	(12.47)	(1.72)	(2.89)	(1.76)
LawxCash		-0.0737***	-0.0737***		-0.0393	-0.0393
		(-2.95)	(-6.52)		(-1.48)	(-1.11)
Cash	-0.0884***	-0.0836***	-0.0836***	-0.103***	-0.101***	-0.101***
	(-23.39)	(-12.35)	(-21.74)	(-8.81)	(-10.88)	(-8.32)
Constant	0.349***	0.349***	0.349***	0.0417***	0.0418***	0.0418***
	(98.80)	(43.09)	(98.81)	(4.68)	(4.70)	(3.18)
Firm Controls	YES	YES	YES	YES	YES	YES
Firm F.E & Year F.E	YES	YES	YES	YES	YES	YES
Clustered Std Erros	YES	NO	YES	YES	NO	YES
N	96,442	96,442	96,442	47,270	47,270	47,270
R^2	0.365	0.365	0.365	0.0156	0.0157	0.0157

***TABLE 15[C]**: Accounting for the Effects of the Laws on Payout*

:This table presents results from a regression analysis where the dependent variable is Dividend Payout in columns[1-4]. Size is estimated as natural logarithms of total sales. Tangibility, profitability and MB are described in Table[1]. All estimations include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported

	(1)	(2)	(3)	(4)
	Payout	Payout	Payout	Payout
Law	1.051***	0.851*	0.865*	0.865*
	(4.57)	(1.80)	(1.72)	(1.72)
Size		0.343***	0.373***	0.373***
		(2.86)	(3.57)	(3.57)
Tangibility		-2.280***	-1.793***	-1.793***
		(-4.85)	(-3.95)	(-3.95)
Profitability		-0.184*	-0.216	-0.216
		(-1.65)	(-1.22)	(-1.22)
MB		0.0110	0.00812	0.00812
		(0.96)	(1.27)	(1.27)
Acq Activities			0.00259	0.00259
			(0.54)	(0.54)
Constant	1.177***	0.190	-0.239	-0.239
	(30.32)	(0.37)	(-0.54)	(-0.54)
Firm F.E	YES	YES	YES	YES
Clustered Std. Errors	NO	NO	YES	YES
Industry F.E	NO	NO	NO	YES
N	120534	106908	99688	99688
R^2	0.00168	0.0109	0.0175	0.0175

Chapter 2

Managerial Entrenchment and Debt Specialization

2.1 Introduction

The decision of whether to borrow predominantly from one lender or multiple lenders is central to the conflict between creditors and management. A plethora of corporate finance literature has focused on the moral hazard arising from the separation of ownership and control- that is the conflict between shareholders and management. In particular, shareholders should have the ultimate control rights since they are the residual claimants and corporate governance should maximize shareholders value[1].

In this paper, we examine a rather less studied conflict, namely the potential conflict between managers and creditors[2]. The conflict arises because

[1] Jensen and Meckling 1976, Shleifer and Vishny 1997, Zwiebel 1996

[2] In the absence of market frictions, the value of the firm is independent of its capital structure. Since

in the presence of information asymmetry and agency costs, entrenched managers may mismanage borrowed funds. Managers optimize private benefits of control while creditors through monitoring minimize managers expropriation of wealth. In particluar, managers can transfer wealth from debt holders by engaging in asset substitution which increases the likelihood of bankrutpcy. As a result, optimal debt structure should be designed to minimize expected bankruptcy costs (Bolton and Scharfstein 1996). And ownership structure should be designed to minimize information asymmetry and maximize creditors monitoring role (Park 2000). Since the ability of creditors to be effective monitors is positively correlated with the value of claims, effective management should have concentrated debt structure. Well-governed firms should specialize by borrowing predominantly from a few creditors. Concentrated debt structure minimizes extraction of private benefits as it facilitates and incentives external monitoring. The theoretical implication is that debt specialization should be inversely related to managerial entrenchment.

We test the above conjecture that firms with entrenched management have a higher degree of dispersion in their debt structure. That is, firms with entrenched management borrow from multiple creditors and use multiple debt types. The size of creditors base matters since the cost of bankruptcy increases with the number of claim holders. The 1939 Trust Indenture Act requires that any change to debt principal, maturity or coupon rate must be

price mechanism guarantees returns to claimants (Modigliani and Miller 1958)

unanimously approved by debt holders. Borrowing from a diverse creditors base increases each creditor's costs of external monitoring and facilitates expropriation of wealth by management. Effectively, a diverse creditor base weakens the negotiation position of each creditor and magnifies asset substitution. As a result, debt renegotiation would be difficult in the presence of many creditors, different debt types, public debt and severe information asymmetry (Haugen and Senbet, 1978).

To test these theories and in similar approach to Colla, Ippolitto and Kai (2013), we first utilize Capital IQ debt structure and construct a normalized Herfindahl-Hirschman Index (HHI), which proxy for degree of debt specialization and creditors concentration. Higher levels of HHI are associated with higher degree of debt specialization. Higher degrees of debt specialization are associated with fewer number of creditors. Lower degrees of debt specialization are associated with higher number of creditors and usage of multiple debt types. Capital IQ defines debt structure as the composition of seven mutually exclusive debt types: commercial paper, capital leases, term loans, revolving credit facilities, senior bonds-and-notes, subordinated bonds-and-notes and other debt types. We then merge capital IQ data with corporate governance indices (Bebchuk, Cohen and Ferrel 2009, Gompers, Ishii and Metrick 2003) and firm-level data from Compustat database. The first key finding is that firms under entrenched management employ multiple debt types and have a disperse debt structure. This result suggests that entrenched managers opportunistically ex-

ploit coordination failure and the free riding problem amongst multiple creditors. Conflicts among creditors and coordination failure arise, in part, due to differences in the levels of creditors protection, cash flow rights, debt seniority and debt maturity.

Second, we aggregate debt types into two major types of lenders: market lenders and bank lenders. We show that bank debt is negatively related to debt specialization while market debt is positively related to debt specialization. Banks are able to effectively monitor and screen (Diamond 1984, 1991, Rajan 1992, Boot, Greenbaum and Thakor 1993). Additionally, we show that the average bank debt decreases with increase in the degree of managerial entrenchment. For bank lenders, effective screening and monitoring is prioritize and any benefits from debt specialization would be marginal. Banks through screening and monitoring are able to reduce or eliminate some agency costs associated with asset substitution and managerial expropriation of funds. This result is consistent with the argument that firms with significant agency conflict (entrenched management) optimally reduce the fraction of bank debt in their capital structure (Park, 2000). The more junior the bank debt, the larger the over-investment problem (Asquith, Gertner and Scharfstein 1994, Gertner and Scharfstein 1991). Overall, reduction of bank debt marginally increases monitoring costs and amplifies extraction of private benefits and expropriation of creditors wealth.

In contrast, market lenders use debt specialization as a commitment device

and as an instrument to enhance monitoring role. Debt specialization incentivizes market lenders as it transfers some control rights from management to creditors during bankruptcy or financial distress. Since complete contracting is costly [3], firms have to credibly signal that they can deliver without external enforcement (ex.courts). Debt specialization is an efficient form of signalling to the market lenders that management will honor contractual obligations. This explains the observed positive relationship between debt specialization and market debt in the data.

This paper relates to several strands of existing literature. First, we contribute to the growing literature that examines the effect of debt composition on firms capital structure. Sufi (2007) find that the lead bank in a lending syndicate retains a large share of loan when a borrowing firm require intense monitoring. Rauh and Sufi (2010) find that firms spread priority of debt maturity structure across credit rating. Their results establish that debt composition is an important aspect of capital structure choice. Colla et al (2013) find that firms that borrow predominantly from one type of debt are likely to be small, unrated, have higher bankruptcy costs and lack access to some segment of the market. While firms that borrow from multiple sources of debt are likely to have large collateral base and have high credit rating. Lee (2016) examine whether high-growth firms rely on bank debt or market debt. They find that high-growth firms borrow predominantly from bank debt since bank monitoring allows these firms to issue

[3]Refer to Grossman and Hart 1986, Holmstrom 1999, Hart and Moore 1990, 2007

bonds-and-notes.

This paper also contributes to the literature on debt dynamics. Crouzet (2015) show that imperfect substitution between debt types can generate and amplify transmission of financial shocks. Xiao (2017) show that debt composition, debt substitution and balance sheet adjustment play a key role in transmission of aggregate shocks. And that imperfect substitution between bank debt and bonds-and-notes can significantly reduce the effectiveness of capital markets. We contribute to this literature by providing empirical evidence on debt heterogeneity and debt substitution. We show that bank debt is negatively related to bonds-and-notes but positively related capital leases and convertible bonds. This result echoes and is consistent with the findings of Detragiache (1994), King, Khang and Nguyen (2011) that bank debt and bonds-and-notes are substitute.

Furthermore, this paper contributes to the literature on corporate governance and capital structure. Bris and Welch (2006) present an agency model of creditors concentration in which higher quality firms endogenously choose to have a concentrated debt structure. In their model, a firm can credibly signal that it is of the highest quality by borrowing predominantly from a single creditor. Colla et al (2013) provides suggestive evidence that a combination of small independent board in which the CEO is not also the chair of the board is positively related to debt specialization. Using an entrenchment index (Bebchuk et al 2009) constructed from IRRC provisions that include staggered boards and golden parachute, we find

that managerial entrenchment is negatively related to debt specialization. This result echoes the finding of Manne (1965) that entrenchment increases extraction of private benefits. In this case, entrenched managers prefer to employ multiple debt types and have a larger creditors' base (lower degree of debt specialization) since a large number of creditors increase the cost of external monitoring and the cost of debt renegotiation. Note that because each debt type would constitute a small portion of the overall firm debt; we would expect that the marginal cost of monitoring is greater than the marginal benefit. As a result, the overall effect of lower degree of debt specialization is to weaken creditors' incentive to monitor. This in turn amplifies extraction of pecuniary benefits by entrenched management.

The remainder of this paper is organized into five sections. The sample and variables are described in section 2. Section 3 outlines the construction of Herfidahl- Hirschman Index (HHI)- which is the proxy for debt specialization and creditors' concentration. And we also outline our empirical strategy. Section 3 also present cross-sectional evidence on debt heterogeneity. Section 4 document the empirical relationship between entrenchment index, firm-specific controls and degree of debt specialization. The main finding is that managerial entrenchment is inversely related to debt specialization. Section 5 contains sensitivity tests to determine the robustness of the main result. A summary and conclusion is provided in section 6.

2.2 Data

The main sample consists of firms incorporated in the U.S. and are covered by Compustat and that have debt structure data available on Capital IQ for the period 2001-2016. We eliminate both financial service firms (SIC 6000-6999) since their liquidity level is difficult to assess and firms in the utility sector (SIC 4900-4949) since their operational activities and governance structure are highly impacted by regulations. We also exclude firms whose total assets are either reported as negative, missing or zero. We also exclude firms with missing or zero total debt. We also require that a firm has to exist throughout the entire sample duration. Furthermore, a firm has to have corporate governance index rating available on both the G-index based on Gompers et al (2003) and the E-Index based on Bebchuk et al (2009). The final sample consists of 824 unique firms.

2.2.1 Corporate Governance Indices

Both the G-Index and E-Index are constructed from Investors Responsibility Research Centre (IRRC) and use the number of anti-takeover provisions in the firm charter and in the legal codes of the state in which a firm is incorporated to measure degree of managerial entrenchment. Higher provisions are associated with poor governance and weak shareholders rights. Thus, higher number of provisions are associated with higher levels of managerial entrenchment.

The G-index is broad and take into account five governance rules that impact the balance of power between shareholders and managers. The five rules include delay which is designed to slow down a hostile take over bid, protection which is designed to protect managers, compensate managers and to shield them against legal liability,Voting which limits and outline shareholders rights in matters related to elections, State which is designed to take into account firms incorporated in state such as Delaware (Bebchuk and Cohen 2003, 2005, Daines 2001) and Others is designed to take into account other measures that limits shareholders rights. Each rule consists of a set of provisions.The delay rule consists of four provisions, both the voting and protection rules consist of six provisions each, while the State rule consists of two provisions and Others contain six provisions. In general, each provision that weakens shareholders rights is weighted as one, as a result the index scale starts at a minimum of one and adds up to a maximum of 24. In my final sample, the G-Index has a mean (median) of 8.7(9) with a standard deviation of 2.7 and minimum(max) of 1(18). Firms whose index rating is above median G-Index (9) are classified as "weakly-governed" or "Highly-Entrenched"[4].

Since not all 24 provisions in IRRC are strongly negatively correlated with firm value, an ideal composite entrenchment index would consist of those

[4]For discussion on some potential weaknesses to using the G-Index- See Cremers and Nair (2005), Cremers, Litov and Sepe(2017), Cremers,Masconde and Sepe(2016) for discussion on staggered boards and supermajority provisions. The E-Index is a more robust measure as it takes into account only the most influential provisions. Nevertheless, the G-Index remains the benchmark measure of takeover defenses/quality of corporate governance. As a result most of the analysis in this paper are done with the E-index as the primary measure of entrenchment and the G-Index as the secondary measure. Where applicable analysis include firm or industry fixed effects.

provisions that have the most influence on managerial expropriation of shareholders rights. In this spirit, Bebchuk, Cohen and Ferrel (2009) constructed an entrenchment (E-index) based on those provisions in IRRC that account for the most negative effect and drive the documented negative relationship between IRRC provisions and firm value. The E-index consist of IRRC provisions that are considered to have the most impact in weakening shareholders rights. These provisions are: poison pill, supermajority, staggered board, golden parachute, limits to amend charter and limits to amend bylaws. Poison pills and golden parachutes are anti-taker over devices design to limit and dilute the voting power of a potential acquirer and increase the cost of firing existing members of the board. Under staggered boards, members serve in overlapping terms and the overall effect is to enhance managerial expropriation of shareholders rights; effectively reducing firm value (Bebchuk and Cohen 2005).

Additionally, the announcement of adoption of staggered board is generally accompanied by negative abnormal stock returns (Faleye 2007). Limitations on amendments of firm bylaws and charter constraint the ability of shareholders to favorably make changes. And under supermajority rule a majority of shareholders is require to approve potential merger or take-over. Overall, these provisions enhance managerial entrenchment and are associated with lower firm value (Gompers et al 2003, Bebchuk et al 2009). The E-Index is constructed by adding one point for each provision and since firms tend to keep provisions; there is a tendency for the

E-Index to be sticky (Johnson, Karpoff and Yi, 2018). The E-Index has a minimum of "0" and a maximum of "6". In the final sample, E-Index has a mean(median) of 2.25(2), a standard deviation of 1.33 and a minimum(max) 0(6). Firms whose E-Index score fall above the median (=2) are classified as "High-Entrenched (HE)" while firms whose index is equal to or below median (=2) are classifified as "Least-Entrenched (LE)".

2.2.2 Control Variables

Firm-specific controls that are determinants of capital structure are extracted from Compustat database. These variables include: size, tangibility, market to book ratio (M/B), profitability, cash flow volatility, a dummy for dividend-payer. Firm-specific controls are constructed in similar spirit to, Lemmon, Roberts and Zender (2008) and Colla et al (2013). Firm size is estimated as the natural logarithm of total book assets and serve as an anti-take over deterrent (Hartford et al 2008). Firm size also proxy for cost of issuing securities, investment flexibility and asset-base diversification and is positively associated with debt financing (Whited 1992, Brennan and Hughes 1991, Fazzari and Petersen 1993, Titman and Wessels 1993). Additionally, firm size proxy for degree of information asymmetry and the cost of external financing. Hence, small firms have higher probability of liquidation when under financial distress (Ozkhan 1996), and are more likely to have a concentrated debt structure. As a result, a negative relationship should be expected between firm size and debt specialization.

Tangibility is estimated as net property, plants and equipment adjusted by total assets. Tangibility serve as a proxy for collateral and reduce information asymmetry, and as a result is positively associated with debt financing or leverage (Harris and Raviv 1991). However, in the presence of bank monitoring, tangibility is negatively related to leverage. Firms that borrow predominantly with market debt have more tangible assets than those firms that predominantly employ bank debt in their capital structure (Denis and Mihov 2003, Johnson 1997). Profitability is estimated as operating income before depreciation adjusted by total assets. Profitability is negatively related to debt financing (Rajan and Zingales 1995).

M/B is estimated as market value of equity plus total debt plus preferred stock liquidation value less deferred taxes and investment divided by total asset. M/B proxy for growth opportunities and is negatively associated with leverage for firms that have high growth opportunities (Barclay and Smith 1995); this is in part to avoid underinvestment (Myers 1977). Cash flow is estimated as the standard deviation of operating income adjusted by total assets. On average cash flow serve as a proxy for financial distress and is negatively associated with bank debt (Sufi 2009). Thus, we would expect cash flow to be negatively associated with leverage. Table [1] presents summary statistics for firm-specific controls.

2.2.3 Capital Structure: Debt Composition

Under Regulation S-X and Regulation S-K of the Security Act of 1933, firms are required to report debt composition and debt instruments in their capital structure. Capital IQ uses firms 10K SEC filings to extract detailed debt structure of the firm. Capital IQ breaks down total debt into seven mutually excusive sub-debts or types: capital leases, commercial paper, term loans, senior bonds-and-notes, subordinate bonds-and-notes, revolving credit facilities and other debt types. These other debt types include deferred credits, trust-preferred securities and fair value adjustments used in hedging contracts.

Table 2 provides summary statistics for each debt type as a fraction of total debt[5]. A majority of firms in the sample (74%) use senior bonds-and-notes for debt financing. Senior bond-and-notes has a mean of 0.45 and a sample median of 0.44. The second most commonly employed debt type are term loans with about 72% of the firms in the sample employing this type of debt financing. About two-thirds of the firms in the sample employs positive levels of revolving credit facility. The least commonly used and accessed debt type is commercial paper with only about 15% of firms in the sample reporting positive usage.

[5]Results are consistent with Colla et al (2013)

2.3 Measuring Debt Specialization and Creditors Concentration

The null hypothesis of this paper is that managerial entrenchment is inversely related to debt specialization. That is entrenched managers optimally borrow from multiple sources and employ multiple debt types; so as to preserve status and extract private benefits of control. Management can preserve status through control rights since borrowing from multiple creditors increases monitoring costs and weakens the renegotiation position of each creditor. A disperse creditor base enhances extraction of private benefits and facilitates expropriation of debt holders wealth by management[6]. To estimate (degree of) debt specialization, we employ a similar identification strategy as in Colla et al (2013). We use normalized Herfindahl-Hirschman Index (HHI) to compute, at firm level, the degree of debt specialization. Capital IQ total debt (TD) data can be decomposed into seven mutually exclusive sub-debts or debt types. These seven debt types are: Commercial paper (CP), Capital leases (CL), term loan (TL), Senior bonds-and-notes (SBN), Subordinate bonds-and-notes (SUBN), Revolving credit lines or facility (RC), Other debt (Others). To construct HHI, we first compute the sum of squares of each debt type adjusted by total debt as in Equation [1] below and then compute the normalized index.

[6]See Bris and Welch (2006)- for theoretical discussions and a variant of this argument

$$SS_{it} = (CP_{it}/TD_{it})^2 + (RC_{it}/TD_{it})^2 + (TL_{it}/TD_{it})^2 + (SBN_{it}/TD_{it})^2 + (SUBN_{it}/TD_{it})^2 + (CL_{it}/TD_{it})^2 + (Other_{it}/TD_{it})^2 \quad (2.1)$$

$$HHI_{it} = \frac{SS_{it} - (1/7)}{1 - (1/7)} \quad (2.2)$$

The normalized HHI is then computed as in Equation [2] above, such that HHI equals to "1" if a firm finance with a single debt type or borrow from a single lender. And HHI equals to "0" if a firm employs each debt type in equal proportion. Higher degrees of HHI are associated with higher levels of debt specialization and higher levels of creditors concentration. Lower degrees of HHI are associated with higher dispersion in debt structure and borrowing from multiples lenders. Note that since different debt types tend to be held by different lenders; HHI is a plausible proxy for creditors concentration [7]. That is, on average a firm tend to borrow each debt type from a single lender.

Table 3 presents the mean of each debt type conditional on the entrenchment index (E-Index) scale. Note that the E-Index has a median of 2. Hence, in Table 3 panel A, firms whose E-Index is equal to or is at least 2 are categorized as Least-Entrenched while firms whose E-Index is greater than or equal to 3 are categorized as High-Entrenched. In the data,

[7]Note that this assumption is standard and is consistent with extant literature- See Colla et al 2013, Lou and Otto 2018

Least-Entrenched (LE) firms constitute 58% of the sample while High-Entrenched (HE) firms constitute 42% of the sample. The average HHI for Least-Entrenched firms is 0.707 while for High-Entrenched firms is 0.688 suggesting that higher levels of managerial entrenchment is associated with lower degrees of debt specialization.

Bank debt is then computed as the sum of revolving line of credit and term loans and market debt is computed as the sum of commercial paper, senior bonds-and-notes and subordinate bonds-and-notes. Both bank debt and market debt constitute about 88.6% of total debt in the sample. On average, High-Entrenched firms total debt consists of 48.8% market debt and 40.7% bank debt. While Least-Entrenched firms' total debt consists of 52.3% market debt and 35.6% bank debt.

Table 3 panel B presents mean of each sub-debt or debt type by E-Index. Across the E-Index scale, the most commonly employed sub-debts or debt types are: senior notes-and-bonds (45%), revolving credit lines (15%) and term loans (23%). On average, debt specialization as measured by HHI is negatively related to the entrenchment index (E-Index). Higher levels of E-Index are associated with lower degrees of debt specialization (HHI).

To assess the empirical importance of debt concentration on firms' capital structure decisions, we examine whether firms with entrenched management have a greater proclivity to employ multiple debt types in their capital structure. Specifically, we estimate the following tobit regression

model:

$$HHI_{it} = \beta_0 + \beta_1 GovtIndex_{it} + \psi' \mathbf{X_{it}} + \epsilon_{it} \tag{2.3}$$

Where i indexes firms and t indexes time (years). HHI_{it} is the normalized Herfindahl-Hirschman Index (HHI) computed as in Equation [2] above. $GovtIndex_{it}$ is a measure of quality of corporate governance. We use both the E-Index and the G-Index to proxy for quality of corporate governance. $\mathbf{X_{it}}$ is a vector of firm specific controls: size, tangibility, market-to-Book (MB) ratio, profitability, cashflow volatility, an indicator variable equals to "1" if a firm is a dividend payer and equals "0" if otherwise. Firm size is estimated as the natural logarithm of total assets. Neither firm nor industry fixed effects have been included since the likelihood estimator of tobit model with fixed effects yields biased and inconsistent estimates[8]. ϵ_{it} - is an idiosyncratic error term.

2.4 Empirical Evidence

2.4.1 Univariate Evidence on Managerial Entrenchment and Debt Specialization

In this section, we provide univariate evidence on the relationship between debt specialization, creditors concentration and corporate gover-

[8]In untabulated results we use both RE tobit model and CRE tobit model, the estimates are generally consistent with the reported estimates. Note that using RE Tobit and CRE Tobit model allows for correlation between fixed effects and other firm level controls but due to difficulty in identifying the distribution of firm specific effects, both RE tobit and CRE tobit do not necessarily yield the desired asymptotic properties.

nance. Following Colla et al (2013) and in order to demonstrate significant usage of each debt type, we first impose and require that a firm usage of a sub-debt or debt type be at least greater than 30% of a firms total debt. Note that if a representative firm in the sample were to employ all debt types in equal proportions, each debt type would constitute only 14.3% of total debt. Requiring that a firm usage of a single debt type be at least 30%, would imply that a firm usage of a single debt type is at least twice as much as its usage of any other debt type. The goal of this exercise is to test and demonstrate a tendency towards creditors concentration and debt specialization. The key insight is that firms with entrenched management are less likely to have a concentrated debt structure. That is relative to well-governed firms, weakly-governed firms employ multiple debt types in their capital structure and as a result have a lower degree of debt specialization.

Table 4 reports the mean of each debt type as a per cent of total debt. Table 4 panel A reports conditional debt structure for Least-Entrenched firms. And Table 4 Panel B reports conditional debt structure for High-Entrenched firms. A firm is classified as "Least-Entrenched" if its entrenchment score is equal to or less than 2 on the E-index scale (Bebchuk et al 2009) and a firm is classified as "High-Entrenched" if its entrenchment score is at least 3 on the E-index scale. In the full-sample, Least-Entrenched firms constitutes about 58.5% (6,205) of firm-year observations and High-Entrenched 41.5% (4,671) of firm-year observations.

In the case of Least-Entrenched firms, the conditional mean usage of each debt type lies between 56% and 83% while the conditional mean usage of each debt type lies between 43% and 82% for High-Entrenched firms. These results suggest that High-Entrenched firms are less likely to specialize relative to Least-Entrenched firms. In Table 4 panel A, Least-Entrenched firms with significant usage of commercial paper are also likely to have high usage of senior bonds-and-notes (30%). Least-Entrenched firms with significant usage of term loans are also more likely to employ senior bonds-and-notes (12%). Least Entrenched firms with significant usage of "Other" debt types are also significant users of senior bonds-and-notes (13%). Overall, senior bonds-and-notes are the second most commonly employed debt type by Least-Entrenched firms that employ more than 30% of their total debt from any single debt type. The results in Panel B also suggests that on average senior bonds-and-notes are the second most commonly employed debt type by High-Entrenched firms.

Table 4 panel C presents univariate comparative analysis of each debt type usage between Least-Entrenched firms and High-Entrenched firms. We first examine whether there are differences in the conditional mean usage of each debt type between Least-Entrenched firms and High-Entrenched firms. The condition is the requirement that a firm usage of a debt type be at least 30% of its total debt usage. The conditional mean usage of senior bonds-and-notes is 0.792(0.767) for Least-Entrenched (High-Entrenched)

firms with a t-test of 3.87. The t-statistics for difference in conditional mean usage of subordinate bonds-and-notes, commercial paper and revolving line of credit are 3.69, 2.63 and 2.11 respectively. The results suggest that Least-Entrenched firms on average specialize at a higher rate than High-Entrenched firms. That is, while Least-Entrenched firms are more likely to have a concentrated debt structure, High-Entrenched firms are more likely to have a dispersed debt structure.

2.4.2 Multivariate Analysis:Managerial Entrenchment and Debt Specialization

In this section, we provide cross-sectional evidence and document the relationship between managerial entrenchment and debt specialization. The intuition is as follows: when a firm specialize by borrowing predominantly from a few creditors; it incentivizes creditors to invest more in monitoring activities. As a result creditors can properly keep in check managerial expropriation of wealth. And since managers have a strong incentive to extract private benefits of control, we would expect entrenched managers to borrow from multiple creditors and employ multiple debt types; so as to opportunitiscally exploit the coordination failure and free riding problem amongst a large number of creditors.

The estimation method is similar to Colla et al (2013). The dependent variable is Herfindahl-Hirschman Index (HHI) constructed as in Equation [1] above. The independent variables include all the commonly used deter-

minants of debt structure: size, tangibility, profitability, market-to-book ratio, cash flow volatility (Colla et al 2013, Rauh and Sufi 2010, Rajan and Zingales 1995). The variable of interest in Table 5 is the coefficient of the E-Index which proxy for the degree of managerial entrenchment. Higher levels of the index are associated with higher levels of managerial entrenchment. Model [1] presents the estimates for the full set of firms in the sample while model [2] and model [3] presents sub-sample analysis. Model [2] presents the estimates for Least-Entrenched (LE) firms and model [3] presents the estimates for High-Entrenched (HE) firms.

The main purpose of Table 5 is to quantify the effect of managerial entrenchment on debt specialization. Since by construction the dependent variable Herfindahl-Hirschman Index (HHI) is truncated at zero and one; we utilize a tobit regression model- characterized as in Equation [3] above. Model [1] reveals that there is a negative relationship between E-Index (Entrenchment) and debt specialization. The coefficient (t-stat) of E-Index is -0.00658(-2.78) and is significant at the 1% level even after controlling for firm specific characteristics. This result that managerial entrenchment is inversely related to debt specialization is the key finding in this paper. And reflects existence of high information asymmetry between managers and creditors that confounds the cost of external financing. Entrenched managers optimally choose to have a disperse debt structure so as to increase monitoring cost and maximize private benefits of control. The coefficient of profitability is negative and is statistically significant indicating

that firms have a preference for using retained earnings over debt, a result which is consistent with (Myers and Majluf 1984) pecking order theory of capital structure.

Firm size proxy the ability to issue debt. The coefficient of firm size is negative and statistically significant at 1%, suggesting that large firms are more likely to diversify their debt structure and employ multiple debt types. Large firms have lower cost of debt issuance due to their ability to provide collateral and a lower information cost (Blackwell and Kidwell 1988, Fama 1985). The large collateral base and low cost of debt issuance imply that large firms are less likely to specialize.

Model [2] presents the estimates for Least-Entrenched firms. A firm is classified as Least-Entrenched if it has an E-Index score of 2 or lower. The coefficient (t-stat) of E-Index is 0.0194(3.62). The result suggests that firms with strong corporate governance have a higher bargaining power and are more likely to employ predominantly one debt type in their capital structure. Model [3] provides estimates for High-Entrenched firms- Firms whose E-Index score is 3 or higher. The coefficient (t-stat) of E-Index is -0.021(-3.01). The evidence suggests that High-Entrenched firms are less likely to specialize. In effect, firms with weak corporate governance have a lower bargaining power and entrenched managers have strong incentives to extract private benefits of control. Thus, firms under entrenched management are more likely to employ multiple debt types in their capital structure. This is, in part, because entrenched managers can effectively

free ride by exploiting the coordination failure amongst multiple creditors. This coordination failure results from higher coordination and monitoring costs associated with a large number of creditors.

Note that while the coefficient of tangibility is positive across all models in Table 5, it is only significant for the set of firms that are classified as High-Entrenched (Model 3). Since tangibility is a robust proxy for firm collateral value; the result suggests that tangible assets mitigate agency costs and that creditors are more willing to provide financing to High-Entrenched firms with a larger collateral base. In particular, under Chapter 11 of the US bankruptcy code, collateral underlying secured lending is subject to automatic stay. But lenders can facilitate repossesion of collateral in case of bankruptcy through bankruptcy-remote special vehicles (SPV). Hence, market or public lenders are more willing to lend to entrenched management with large tangibile asset base. This result is consistent with the finding in extant literature that tangible assets increase leverage by reducing the cost of liquidation during bankruptcy (Bolton and Scharfstein 1996, Harris and Raviv 1991, Rajan and Zingales 1995, Titman and Wessels 1988). Additionally, cash flow volatility proxy for financial distress and is associated with higher level of information asymmetry. The coefficient of cash flow volatility is positive and statistically significant, suggesting that firms with uncertain earnings are more likely to specialize. This finding is consistent with the notion that firms with high cash flow volatility are less likely to obtain bank debt (Sufi, 2009a, 2009b). And as a result, this set of

firms exhibit a higher degree of debt specialization (Colla et al 2013).

Model [4]-[6] present the estimates with additional firm-specific controls. These controls are: cash flow volatility, an indicator for dividend payer and book leverage. Model [4] presents the estimates for all firm-year observations, while model [5] and model [6] present estimates for Least-entrenched and High-entrenched firms respectively. The coefficient of E-Index is negative for the average firm in the sample, the coefficient of E-Index is positive for Least-entrenched firms and the coefficient of E-index is negative for High-entrenched firms. Observe also that the coefficient of the E-Index is statistically significant at the 1% level across all three models. The results indicate that debt specialization is inversely related to managerial entrenchment. Higher levels of managerial entrenchment are associated with lower degree of debt specialization as measured by HHI.

Overall, the results are consistent with the proposition that entrenched managers prefer to borrow from multiple creditors as it weakens each creditor's ability to monitor intensively and to renegotiate. Under corporate bankruptcy laws creditors have the power to expropriate firm assets so as to meet outstanding financial claims (Rajan and Zingales 2003, Watson and Ezzamel 2005). Thus, debt covenants are designed to limit managerial over-reach and to protect creditors in case of bankruptcy or during time of financial distress. High degree of debt specialization implies that a concentrated creditor base has a stronger re-negotiation position. Ex-ante, entrenched managers prefer to use multiple sources of debt financing and

employ multiple debt types so as to minimize creditors' ability to assert restrictions on managerial overreach and extraction of private benefits of control.

Furthermore, limited liability insulates managers from direct responsibility for unrecoverable debts (Watson, 2013). As a result, a weakened creditor base may incentivize entrenched managers to undertake excessive debt-financed projects and accrue private benefits of control. Additionally, concentrated debt structure strengthens creditors rights protection and might result in costly external financing for High-entrenched firms. Firms with entrenched management would ex-ante avoid or minimize expected bankruptcy costs through disperse debt structure. This result is consistent with the hypothesis that when creditors' rights are strengthened, firms are less likely to employ secured debt financing in their capital structure (Vig, 2013).

2.4.3 Effects of Bank Debt and Market Debt on Specialization

The results in Table 5 establish that debt specialization is inversely related to managerial entrenchment. Nevertheless, both the type of debt and the source of debt financing directly affect managerial decision to specialize or not to. Under Diamond (1991) life cycle model, firms substitute between market (public) debt and bank debt. Johnson (1997) also find that firms simultaneously borrow from multiple sources of debt. Furthermore, creditors coordination failure would be more severe amongst public lenders

than amongst bank lenders (Asquith et al 1994, Gertner and Scharfstein 1991).This would imply that market (public) debt would be positively related to debt concentration.

In this section, we examine how the choice of either bank debt or market (public) debt affects managerial decision to specialize or not to. Capital IQ debt structure can be largely aggregated into two sources of debt financing: bank debt and market debt. Bank debt is the sum of term loans and revolving credit line while market debt is the sum of commercial paper, senior notes-and-bonds and subordinate bonds-and-notes. Both bank debt and market debt combined together constitute 88.6% of total debt in the sample. The remaining 11.4% of total debt consists of capital leases and "other" debt types.

To demonstrate heterogeneity in the usage of market debt and bank debt, we first carry out univariate analysis. We test the difference in mean usage of bank debt and market debt conditional on the level of managerial entrenchment (E-Index).The univariate evidence outlined in Table 6a suggest that firms significantly utilize market debt over bank debt across all entrenchment index score. The results in Table 6a are consistent with extant literature and reflect high contracting cost in bank debt financing (Park 2000, Lee 2016). The evidence also suggest that both market debt and bank debt are negatively related to managerial entrenchment. Both the average bank debt and the average market debt decline with increase in the E-Index score.

Figure [2.1] provides time series evidence of market debt and bank debt utilization conditional on the entrenchment index (E-Index). The evidence demonstrate that market debt constitutes a larger fraction of firm total debt for both Least-entrenched and High-entrenched firms. Since obtaining bank debt requires costly state verification via monitoring and screening (Cantillo and Wright 2000, Diamond 1991, Chemmanur and Fulghieri 1994) relative to market debt; firms have relatively higher amount of market debt in their capital structure.

Table 6 examines the effects of bank debt and market debt on debt specialization. Since the current period E-Index is highly correlated with future years E-Index[9], "Entrenched" is an indicator variable equals to "1" if a firm E-index is greater than or equal to 3[10]. Model [1] presents estimates for all firm-year observations. The coefficient (t-stat) of entrenched is -0.0238(-3.77) and is statistically significant at the 1% level. The result establishes that managerial entrenchment is inversely related to debt specialization. Firm size is negatively related to debt specialization. The coefficient(t-stat) of the natural logarithm of size is -0.00672(-3.67), suggesting that a one standard deviation increase in firm size is associated with reduction of 0.0084 (0.012%) in debt specialization. Because of the large collateral base and low cost of debt issuance, large firms are less likely to specialise and

[9]This assumption is consistent with literature since in general most take-over defenses are sticky (E-Index). See Johnson, Karpoff and Yi (2018)

[10]To construct a continuous dataset, we follow Bebchuk et al. (2010) and fill the missing years by assuming that the provisions in any given year were in place in the years preceding the publication date

instead employ multiple sources of debt in their capital structure. Nevertheless, observe that large firms under entrenched management are less likely to specialise; the result reflects managerial opportunism.

The coefficient(t-stat) of profitability is -0.00966(-1.76), implying that an increase of one standard deviation in profitability increases debt specialization by 0.004, a decrease of 0.64%. Profitable firms prioritize deployment of internal capital such as retained earnings over debt issuance (Myers and Majluf 1984). Tangibility proxy for cost of bankruptcy and is positively related to debt specialization; reflecting reduce cost of liquidation and ability of firms to provide collateral (Harris and Raviv 1991). A one standard deviation increase in tangibility is associated with an increase of 0.0054(0.7%) in the degree of debt specialization. Market-to-book (MB) ratio is a proxy for growth opportunities. The coefficient of MB while negative is not statistically significant. Thus, there is no empirical evidence to support the notion that debt specialization changes with firm growth opportunities.

In model [2], the coefficient (t-stat) of market debt is 0.0543(7.02), which is statistically significant at 5% level. The result indicate that market debt is positively related to debt specialization. The effect of one standard deviation increase in adjusted market debt increases debt specialization by about 0.207; which is an increase of 29.6% over the HHI unconditional mean. The result support the theoretical and empirical findings that market debt has fewer restrictive covenants and lower contracting cost (Diamond 1991, Park 2000, Rauh and Sufi 2010, Hackbarth and Mauer 2012).

The observe positive relationship between market debt and debt specialization is, potentially, attributable to the ease of refinancing and firms finding it more cost effective to employ market debt.

In model [3], the coefficient of bank debt is -0.0489(-6.13) and the coefficient is statistically significant at the 1% level. The results in model [3] suggest that bank debt is negatively related to debt specialization. Banks are efficient monitors and mitigate information asymmetry; as a result significant bank debt in a firm capital structure minimizes the conflict between managers and creditors. The potential conflict between bank lenders and entrenched managers arises because entrenched managers are less likely to cede control rights, while banks debts have restrictive covenants designed to penalise managerial opportunism (Myers 1977). And banks monitoring activities intensify with the presence of other debt types such as subordinate notes-and-bonds (Park 2000). Banks effectively monitor the scope of managerial opportunism, as a result the propensity to use bank debt decreases as firm's management become more entrenched.

Bank debt effectively serves as an instrument that transfer monitoring and control rights from management to creditors. Thus, entrenched managers have strong proclivity and incentive to insulate themselves from bank monitoring. Overall, the restrictive covenants and high contracting costs embedded in bank debt financing serve as constraints to debt specialization. Entrenched managers have a strong incentive to accrue private benefits of control, adopt entrenching provisions and inefficiently allocate cor-

porate resources (Jensen, 1986, Jensen and Meckling, 1976). The fact that managerial entrenchment is negatively related to firm value (Gompers et al 2003) while banks willingness to renegotiate is positively related to firm value; suggest that bank debt would be negatively related to debt specialization. Entrenched management optimally choose disperse debt structure so as to minimize external monitoring and maximize extraction of private benefits of control. The estimates in Table 6 are consistent with the hypothesis that bank debt is inversely related to debt specialization and that market debt is directly related to debt specialization.

2.5 Robustness Checks

2.5.1 Alternative Measure of Debt Concentration

A potential concern with using Herfindahl-Hirschman Index (HHI) in Equation [2] above is that, the measure implicitly assumes that the coordination cost is constant across all seven capital IQ debt types. However, it is plausible that there is variation in coordination costs even within one debt type. For example one might expect that the coordination costs for public debt is greater than the coordination costs for bank debt. This is due to costly state verification imbedded in bank debt financing. Motivated by this concern and in similar spirit to Colla et al (2013), we construct a debt concentration measure (EXCL90), which takes the value of "1" if a firm has at least 90% of its total debt in one debt type. An EXCL90 value equals to 1

indicates that a firm employs only a single debt type in its capital structure. Table 7 presents estimates in which EXCL90 is the dependent variable. All regressions include firm specific controls. The variables of interest are the interaction of bank debt with the the intrenchment index and the interaction of market debt with the entrenchment index. Note that "Entrenched" is an indicator variable equals to "1" if a firm's E-Index score is strictly greater than 2 (median). Model [1] and Model [2] present estimates from probit regression while model [3] and model [4] present results from a logit regression model. The estimates across all the four models are consistent with the hypothesis that managerial entrenchment is inversely related to debt specialization.

[Insert Table 7 About Here]

2.5.2 Debt Specialization and Financial Crisis

Another concern is that the findings in Table 6 can be explained away by firms' exposure to uncertainty shocks. That is during periods of high uncertainty shocks firms are more likely to concentrate debt. This can be explained by either increase in cost of external financing or increase in the probability of bankruptcy during periods of high uncertainty shocks. To mitigate this concern, we examine the effect(s) of ncertainty shock following the Lehman Brothers' 2008 bankrupcy- generally considered to be the onset of the 2008 financial crisis.

In Table 8, "Post" is a dummy variable indicating years after the 2008 fi-

nancial crisis. The coefficient of the variable "Post" is positive across all four models suggesting that the post-crisis period is characterised by an increase in debt concentration. However, the interaction term "PostxEntrenched" is negative suggesting that entrenched management continue to have a disperse debt structure. That is, firms with entrenched management continue to employ multiple debt types in their debt structure. Furthermore, the interaction of post-crisis period term, entrenchment and market debt (bank debt) is negative which is consistent with the estimates in Table 6. These findings are inconsistent with the explanation that the results in Table 6 are potentially attributable to and driven entirely by uncertainty shocks.

2.5.3 Omitted Variable Bias

A potential concern in the analysis is that managers base their decision to specialize or not to on the pre-existing firm debt level. This would imply an upward bias in the coefficient of entrenchment index. That is, the effect of managerial entrenchment can be explained away by controlling for the pre-existing debt concentration or trend in firm's debt holding.

To mitigate this concern, we first lag the HHI by two years and four years[11,12]. We then estimate a tobit model with firm-level controls. And then document the relationship between lagged HHI and current period debt concentration. The coefficient of entrenchment is negative and the

[11]Consistent with the methodologies of Bradley and Chen (2011), Dittmar and Mahrt-Smith 2007

[12]In untabulated analyses, we also find that the results are consistent when using L1.HHI

coefficient is statistically significant at the 1% level. The result suggests that our estimations are not significantly impacted by ommitted variable bias. Overall, the results are consistent with our main hypothesis that entrenched managers optimally choose to have a disperse debt structure. And the estimates are also consistent with the second hypothesis- that is while market debt is positively related to debt specialization, bank debt is negatively related to debt specialization, even after controlling for the pre-existing debt or the pre-existing trend in firm's level of debt concentration.

2.5.4 Exploring the Simultaneous Usage of Debt

A major concern with using the capital IQ data is that there are some missing outstanding debt data. To address this concern, we re-investigate the relationship between managerial entrenchment and debt specialization using Compustat constructed debt variables. Compustat total debt consists of four debt types: bank debt, convertible debt, bonds-and-notes and capitalised leases. Extant literature establishes that firms do not choose each debt type in isolation, but rather that debt types are jointly determined (Johnson 1997, Lee 2016).

Table 10 provides evidence on the relationship between the four Compustat constructed debt types. In model [1], we examine the relationship between bank debt and other debt types controlling for firm-specific variables and year and industry fixed effects. Note that in model [1], bank debt is the dependent variable. The results in model [1] suggest that bank

debt is positively related to convertible debt and capital leases and that bank debt is negatively related to bonds-and-notes. A one standard deviation increase in bonds-and-notes is associated with a decline of 0.099 in bank debt. The result is consistent with the notion that firm subsistute between bank debt and bonds-and-notes (Detragiache (1994), Kang, Khang and Nguyen, 2011). In model [1], we find that tangibility is positively related to bank debt, which is consistent with extant literature (Harris and Raviv, 1990). Tangibility proxy for collateral value and mitigates information asymmetry between creditors and borrowers. Since banks are effective at screening projects and monitoring firms (Diamond, 1991) banks are effectively able to evaluate tangible assets. As a result a large collateral base would be positively correlated with bank debt.

In model [2], convertible debt is the dependent variable. The results suggest that convertible debt is negatively related to capital leases but positively related to bank debt and bonds-and-notes. The fact that bank debt and convertible debt are positively related reflects the informational sensitivity of convertible debt (Brennan and Schwartz 1993). Model [3] presents estimates with capital leases as the dependent variable. The results suggest that capitalised leases are positively related to bonds-and-notes and bank debt but negatively related to convertible bonds. The results in model [4] suggest that bonds-and-notes are positively related to convertible debt and capitalised leases but negatively related to bank debt.

2.5.5 Debt Specialization using Compustat Debt Structure Data

To examine the effect of managerial entrenchment on debt structure, we start by constructing Herfindahl-Hirshchman index (HHW index) based on Compustat four sub-debt or debt types. The HHW Index is constructed as in Equation [1] and Equation [2] above. However, instead of the seven capital IQ debt types, we use the four compustat sub-debt or debt types. These debt types are: bank debt, capitalised leases, bonds-and-notes and convertible debt.

Table 11A presents results from a tobit regression model with HHW as the dependent variable. The independent variables are the E-index, firm size, tangibility, profitability, market-to-book ratio and cash flow volatility. The results in model [1] show that debt specialization is inversely related to the entrenchment index (E-Index). The coefficient(t-stat) of E-index is -0.00754(-3.37) and is statistically significant at the 1% level. To account for marginal effects of each debt type, we include in model [2],[3],[4] and [5] bonds-and-notes, capitalised leases, bank notes and convertible debt respectively. The results in model [5] suggest that bank debt is negatively related to debt specialization. These results are consistent with those reported in Table 6 above when using capital IQ data. Overall, the empirical evidence in Table 11A is consistent with the main hypothesis of this paper; which is that managerial entrenchment is inversely related to debt specialization.

In Table 11B, we use the Gompers, Ishii and Metrick index (G-Index) as

the proxy for managerial entrenchment. The results are consistent with those estimates reported in Table 9. Overall managerial, entrenchment is negatively related to debt specialization across all models [1]-[6]. In model [5] the coefficient (t-stat) of bank debt is -0.0897(-11.41) which is statistically significant at the 1% level. The result suggests that bank debt is negatively related to debt specialization. Firms with high level of bank debt are less likely to concentrate debt. The results are consistent with our key finding: firms with entrenched management have a higher proclivity to employ multiple debt types and have disperse debt structure.

2.6 Conclusion

While a vast corporate finance literature examines the conflict between shareholders and management, there is little empirical work on the conflict between creditors and management. In this paper, we first explore how managerial entrenchment affects debt structure. The results provide a comprehensive picture of how corporate governance influences debt choice(s). We start by providing cross-sectional evidence on the heterogeneity of debt structure conditional on corporate governance measure. We then construct a Herfindahl-Hirschman Index (HHI) which proxy for degree of debt specialization and for degree of creditors concentration. Higher values of HHI are associated with a tendency to concentrate debt and a tendency to employ fewer debt types. We show that managerial

entrenchment is inversely related to debt specialization. This result suggests that entrenched managers employ multiple debt types in their capital structure and borrow from multiple creditors. Since each creditor has a small claim; the marginal cost of monitoring outweighs the marginal benefit of extracting the full value of claims. As a result, each creditor has little incentive to monitor and renegotiate debt. Hence, entrenched managers exploit the coordination failure and free riding problem amongst multiple creditors.

Second, we aggregate sources of debt financing into two major types of lenders: Market lenders and Bank lenders. We show that market debt is positively related to debt specialization. By borrowing from a few lenders, firms are credibly signalling and transferring some control rights to market lenders. As a result, market lenders have an incentive to monitor and participate in debt renegotiation. In contrast, we find that bank debt is negatively related to debt specialization. Bank lenders are able to effectively assess information, monitor and contractually extract claims. And any additional benefit from debt specialization would be marginal. Overall, the findings suggest that creditors can discipline management through debt specialization.

2.7 Figures and Tables

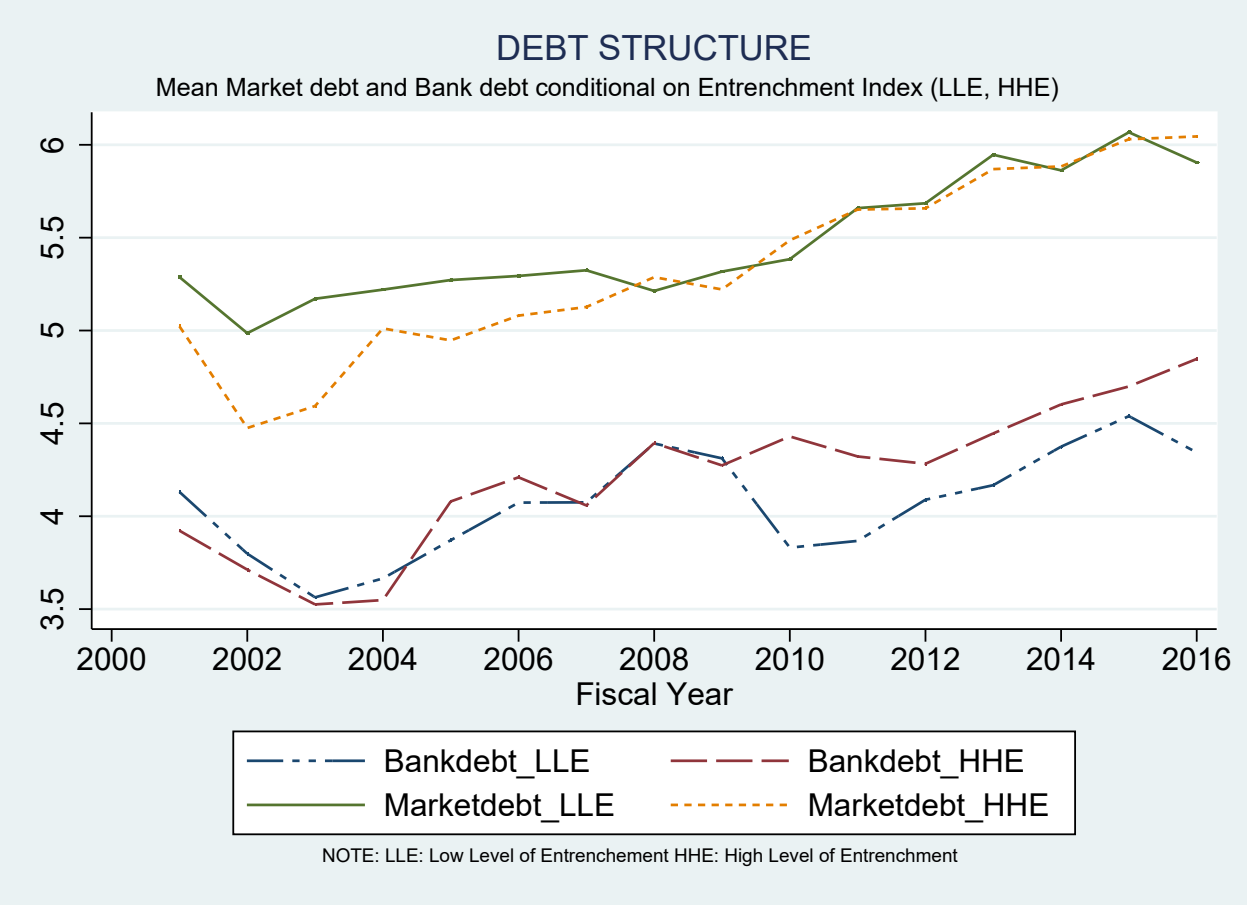


Fig. 2.1 Bank Debt and Market Debt

***TABLE 1**: Summary Statistics*

:This table presents the descriptive statistics for the sample. We drop utility sector (SIC codes 4900-4949) and financial sector (SIC codes 6000-6999). We also require that a firm exists thoughout the whole sample period 2001-2016. And that a firm has governance index rating on both Bebchuk et al (2009) and Gompers et al (2003). The final data set consist of 824 unique firms. Cash is the ratio of cash and equivalents (CHE) to total assets. Ln(size) is the natural log of total assets. Profitability is the operating income before depeciation (OIBD) adjusted by total assets. Tangibility is net property and equipment (PPENT) adjusted by total assets. Market leverage is total debt adjusted by total debt plus market value of equity. Book leverage is total debt divided by total assets. MB is the sum of market value of equity, total debt, preferred stock liquidation value less deferred taxes adjusted by total assets. Cash flow is the standard deviation of OIBD over the previous years adjusted by total asset.

	Mean	**Median**	**St.dev**	**25^{th}**	**75^{th}**
Cash	0.1367	0.0834	0.0016	0.0326	0.1823
Profitability	0.1072	0.1315	0.0071	0.0867	0.1796
MB	1.8289	1.2579	0.0943	0.8922	1.8677
Tangibility	0.2987	0.2168	0.0024	0.1050	0.4336
Market Leverage	0.2266	0.1820	0.0020	0.0836	0.0342
Book Leverage	0.2782	0.2383	0.6354	0.1280	0.3644
Ln(Size)	7.8132	7.7668	1.7971	6.6865	8.9673
Cashflow Volatility	0.0813	0.0413	0.0055	0.0257	0.0648

***TABLE 2**: Debt Structure: Summary Statistics*

This table presents the statistical distribution of debt types adjusted by total debt.

Debt structure data is extracted from capital IQ data base for the period 2001-2016.

	Mean	**Median**	**St.Dev**	**25**th	**75**th	**95**th
Capital IQ Debt Types:						
Term Loan	0.2284	0.0027	0.3397	0.0000	0.3894	1.0000
Commercial Paper	0.0124	0.0000	0.0608	0.0000	0.0000	0.0749
Sen. Bonds-and-Notes	0.4492	0.4370	0.4057	0.0000	0.8772	1.0000
Sub. Bonds-and-Notes	0.0466	0.0000	0.1626	0.0000	0.0000	0.3612
Capital Leases	0.0417	0.0000	0.1645	0.0000	0.0043	0.1904
Revolving Credit	0.1497	0.0000	0.2804	0.0000	0.1449	0.9376
Other Debt types	0.0721	0.0000	0.2017	0.0000	0.0140	0.5729

TABLE 3A: *Panel A: MEANS-Corporate Governance and Debt Structure*

This table presents summary statistics on capital IQ debt structure conditional on Bebchuk et al (2009) entrenchment index (E-Index). Column 1 presents the means of each debt type for all firms. HHI is Herfindahl-Hirshcman Index and is the proxy for debt specialization. HHI is positively associated with creditors concentration. Column 2 presents the means for Least-Entrenched firms. "Least-Entrenched" are firms whose E-Index values is $=<$ 2. Column 3 presents means for "High-Entrenched firms", these are firms whose E-Index is $>=$ 3. Bank debt is the sum of term loans and revolving credit facilities while market debt is the sum of commercial paper, senior bonds-and-notes and subordinate bonds-and-notes. Both bank debt and market debt constitute 88.6% of total debt.

	ALL FIRMS	LEAST-ENTRENCHED	HIGH-ENTRENCHED
HHI	0.6989	0.7070	0.6880
Term Loans(TL)	0.2284	0.2174	0.2431
Commercial Paper(CP)	0.0124	0.0131	0.0115
Sen. Bonds-and-Notes(SBN)	0.4491	0.4622	0.4317
Sub. Bonds-and-Notes(SUBN)	0.0466	0.0478	0.0449
Capitalised Leases (CL)	0.0417	0.0427	0.0403
Revolving Credit(RC)	0.1497	0.1389	0.1640
Other Debt types(Others)	0.0721	0.0779	0.0645
Market Debt	0.5081	0.5231	0.4881
Bank Debt	0.3781	0.3563	0.4071

TABLE 3B: Panel B: Corporate Governance and Debt Structure

This table presents summary statistics of each debt type conditional on the E-Index scale. The table paints a clear picture of statistical dispersion of each debt type across entrenchment index score. The row "LE" reports the weighted means of Least-Entrenched (LE). These are firms whose E-Index is =< 2 and the row "HE" reports the weighted means of High-Entrenched(HE) firms. These are firms whose E-Index is >= 3. Note that on average HHI decreases with increase in E-Index scale

	TL	**CP**	**SBN**	**SUBN**	**CL**	**RC**	**Others**	**HHI**
E-INDEX	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
0	0.2018	0.01540	0.4395	0.0486	0.0348	0.1717	0.0882	0.6699
1	0.2145	0.01536	0.4815	0.0442	0.0574	0.1266	0.0606	0.7391
2	0.2250	0.01080	0.4596	0.0497	0.0371	0.1336	0.0841	0.7024
LE	**0.2174**	**0.0131**	**0.4622**	**0.0478**	**0.0427**	**0.1389**	**0.0779**	**0.7070**
3	0.2483	0.0067	0.4314	0.0450	0.0472	0.1494	0.0719	0.7092
4	0.2328	0.0161	0.4298	0.0494	0.0283	0.1799	0.0638	0.6615
5	0.2909	0.0087	0.4071	0.0315	0.0460	0.2003	0.0156	0.6459
6	0.0079	0.0117	0.4395	0.0029	0.0166	0.1890	0.0316	0.6778
HE	**0.2431**	**0.0115**	**0.4317**	**0.0449**	**0.0403**	**0.1640**	**0.0645**	**0.6880**

***Table 4A**: Conditional Debt Type Usage: Least-Entrenched vs. High-Entrenched Firms*

This table presents conditional usage of each debt type. In each row, we require that a usage of each debt type be greater than 30% of total debt.This requirement means a conditional usage of a debt type is at least twice as much as when a firm employs all debt types in equal proportions. Panel A of the table presents statistical means for the Least-Entrenched firms (E-index <= 2). And panel B presents estimates for High-Entrenched firms (E-Index>= 3)

	TL	**CP**	**SBN**	**SUBN**	**CL**	**RC**	**Others**
Least-Entrenched			**Panel**	**A**			
TL> 0.30	**0.71173**	0.01437	0.07137	0.10274	0.07426	0.12179	0.10223
CP> 0.30	0.00209	**0.56433**	0.01720	0.00003	0.00000	0.00136	0.00844
SBN> 0.30	0.12235	0.39228	**0.79213**	0.10287	0.07852	0.11878	0.13449
SUBN> 0.30	0.02355	0.000355	0.01636	**0.67492**	0.00225	0.03185	0.02649
CL> 0.30	0.01957	0.002787	0.01590	0.01223	**0.82826**	0.014822	0.00394
RC> 0.30	0.08349	0.003144	0.05152	0.08958	0.01492	**0.69859**	0.03838
Others> 0.30	0.03722	0.02272	0.03553	0.01763	0.00179	0.01281	**0.68602**
High-Entrenched			**Panel**	**B**			
TL> 0.30	**0.71642**	0.02699	0.081453	0.15344	0.04811	0.09305	0.11253
CP> 0.30	0.00213	**0.43499**	0.01814	0.000083	0.003772	0.00033	0.01484
SBN> 0.30	0.12309	0.43537	**0.76739**	0.10554	0.05629	0.16584	0.12956
SUBN> 0.30	0.03467	0.0000	0.015423	**0.59263**	0.0000	0.03228	0.03099
CL> 0.30	0.01753	0.01386	0.013673	0.00495	**0.8201**	0.02146	0.0083
RC> 0.30	0.07333	0.00771	0.074851	0.09168	0.06391	**0.67128**	0.04197
Other> 0.30	0.032931	0.08107	0.029075	0.05093	0.007783	0.01576	**0.66180**

***TABLE 4B**: Test of Differences in Mean Usage of Debt Type: LE vs HE*

This table presents a test of differences in mean usage of debt type between the Least-Entrenched (LE) and High-Entrenched(HE) firms. Conditional debt means are extracted from Table 4A and unconditional means are from Table 3.

t-test are reported in column 3 and 6: * p:0.10, ** p:0.05, *** p:0.01

	LE	**HE**	**t-test**	**LE**	**HE**	**t-test**
Debt Type	Mean	Mean	**Conditional**	Mean	Mean	**Unconditional**
TL	0.71173	0.71642	-0.46	0.21738	0.24307	-3.37***
CP	0.56433	0.43488	2.63***	0.01306	0.01149	1.15
SBN	0.79213	0.76739	3.87***	0.46223	0.43174	3.35***
SUBN	0.6749	0.5926	3.69***	0.04785	0.04489	0.81
CL	0.8283	0.8201	0.27	0.04268	0.04035	0.63
RC	0.6986	0.6713	2.11**	0.13898	0.1640	-3.99***
Other	0.6860	0.6618	1.28	0.07788	0.006447	2.97***
Aggregation						
Bank Debt	0.3563	0.4071	-5.73***	0.8824	0.8603	3.73***
Market Debt	0.523	0.488	3.83***	0.8648	0.8532	2.44**

TABLE 5: Managerial Entrenchment and Debt Specialization

This table presents multivariate analysis using tobit regression model. The dependent variable is HHI- which proxy for debt specialization and creditors concentration. HHI is censored below at [0] and above at [1]. An HHI value of 1 implies that a firm use only one debt type in its capital structure. And also implies perfect debt specialization. An HHI value of zero is associated with equal usage of all seven debt types. E-Index is the entrenchment index (Bebchuk, Cohen & Ferrel 2009).Construction of firm specific variables are as in Table 1: Ln(size) is the natural logarithm of total assets. Profitability is the operating income before depeciation (OIBD) adjusted by total assets. Tangibility is net property and equipment (PPENT) adjusted by total assets. Market leverage is total debt adjusted by total debt plus market value of equity. Book leverage is total debt divided by total assets. MB is the sum of market value of equity, total debt, preferred stock liquidation value less deferred taxes adjusted by total assets. Cash flow is the standard deviation of OIBD over the previous years adjusted by total asset. Dividend payer is an indicator variable equals 1 if a firm pays dividend at time t. Column 1 reports the presentation for all firms. Column 1 & column 5 report estimates for the whole sample. Column(2) & column (5) report estimates for Least-entrenched firms(LE)-(E-Index =< 2) and column (3)& column (6) report estimates for High-entrenched firms (HE) (E-Index >= 3)

	(1)	(2)	(3)	(4)	(5)	(6)
	HHI	**HHI**	**HHI**	**HHI**	**HHI**	**HHI**
Table 5:	ALL	LE	HE	ALL	LE	HE
E-Index	-0.00658***	0.0194***	-0.0210***	-0.00614**	0.0199***	-0.0220***
	(-2.78)	(3.62)	(-3.01)	(-2.58)	(3.72)	(-3.14)
Ln(Size)	-0.00662***	-0.000946	-0.0169***	-0.00550***	-0.000319	-0.0174***
	(-3.62)	(-0.42)	(-5.23)	(-2.75)	(-0.13)	(-4.87)
Tangibility	0.0222	0.00781	0.0418**	0.0212	0.00640	0.0430*
	(1.64)	(0.45)	(1.97)	(1.56)	(0.36)	(1.95)
MB	-0.000265	-0.0000356	-0.000544	-0.000353	-0.000296	-0.000675
	(-0.65)	(-0.05)	(-1.05)	(-0.86)	(-0.45)	(-1.27)
Profitability	-0.0100*	-0.0106	0.0363	-0.000499	-0.00127	0.0467
	(-1.83)	(-1.45)	(0.86)	(-0.08)	(-0.16)	(1.07)
Cashflow volatility				0.0185**	0.0217***	-0.118
				(2.54)	(2.96)	(-1.37)
Dividend payer				-0.00392	0.00604	-0.0122
				(-0.57)	(0.67)	(-1.09)
Book Leverage				0.00401	0.00316	0.0465**
				(0.92)	(0.72)	(1.97)
Constant	0.760***	0.689***	0.875***	0.749***	0.677***	0.883***
	(47.93)	(34.59)	(25.99)	(45.71)	(32.97)	(24.64)
Model	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
N	7232	4099	3133	7228	4097	3131
pseudo R^2	0.021	0.028	0.065	0.026	0.041	0.075

TABLE 6A:*Corporate Governance, Market Debt and Bank Debt*

Test of differences in mean usage of adjusted market debt and adjusted bank debt conditional on entrenchment index. Both market debt and bank debt are adjusted by total debt. Entrenchment index is based on Bebchuk, Cohen and Ferrel (2009)- E-Index

	Market Debt	**Bank Debt**	**Significance**
E-INDEX	Mean	Mean	t-test
0	0.5035	0.3736	6.97***
1	0.5409	0.341	12.93***
2	0.5202	0.3587	13.73***
3	0.4831	0.3977	6.69***
4	0.4952	0.4127	5.17***
5	0.4912	0.4473	-1.28
6	0.7549	0.1968	7.11***

***TABLE 6B**: Bank Debt, Market Debt and Managerial Entrenchment*

This table presents multivariate analysis using a tobit regression model. The dependent variable is HHI- which proxy for debt specialization and creditors concentration. HHI is censored below at [0] and above at [1]. An HHI value of 1 implies a firm employs only one debt type in its capital structure. And it also implies perfect debt specialization. An HHI value of zero is associated with equal usage of all seven debt types. Entrenched is a dummy variable equals 1 if the entrenchment index (Bebchuk, Cohen & Ferrel 2009) E-Index>= 3.Construction of firm specific controls are as in Table 1: Ln(size) is the natural logarithms of total assets. Profitability is the operating income before depeciation (OIBD) adjusted by total assets. Tangibility is net property and equipment (PPENT) adjusted by total assets. Market leverage is total debt adjusted by total debt plus market value of equity. Book leverage is total debt divided by total assets. MB is the sum of market value of equity, total debt, preferred stock liquidation value less deferred taxes adjusted by total assets. Cash is cash and equivalents (CHE) adjusted by total assets. Bank debt is the sum of term loans and revolving credit facilities adjusted by total debt. Market Debt is the sum of commercial paper senior bonds-and-notes and subordinate bonds-and-notes adjusted by total debt. **NOTE:** t-stats in parenthesis* p:0.10, ** p:0.05, *** p:0.01

	(1)	(2)	(3)	(4)	(5)
	HHI	**HHI**	**HHI**	**HHI**	**HHI**
Table 6B:					
Entrenched	-0.0238***	-0.0220***	-0.0216***	-0.0206***	-0.0210***
	(-3.77)	(-3.49)	(-3.41)	(-3.24)	(-3.30)
Ln(Size)	-0.00672***	-0.00829***	-0.00772***	-0.00710***	-0.00763***
	(-3.67)	(-4.51)	(-4.21)	(-3.79)	(-4.07)
Profitability	-0.00966*	-0.00955*	-0.00996*	-0.00980*	-0.00937*
	(-1.76)	(-1.75)	(-1.82)	(-1.79)	(-1.72)
Tangibility	0.0229*	0.0233*	0.0253*	0.0318**	0.0303**
	(1.69)	(1.73)	(1.88)	(2.26)	(2.16)
MB	-0.000244	-0.000213	-0.000223	-0.000227	-0.000217
	(-0.60)	(-0.53)	(-0.55)	(-0.56)	(-0.54)
Market Debt		0.0543***			0.0552***
		(7.02)			(7.13)
Bank Debt			-0.0489***	-0.0496***	
			(-6.13)	(-6.21)	
Cash				0.0358	0.0393*
				(1.61)	(1.76)
Constant	0.756***	0.740***	0.781***	0.769***	0.726***
	(49.87)	(48.41)	(49.90)	(44.58)	(42.50)
Model	Tobit	Tobit	Tobit	Tobit	Tobit
N	7232	7232	7232	7232	7232
Pseudo R^2	0.025	0.060	0.052	0.054	0.062

TABLE 6C: Bank Debt, Market Debt and Managerial Entrenchment

This table presents multivariate analysis using a tobit regression model. The dependent variable is HHI- which proxy for debt specialization and creditors concentration. HHI is censored below at [0] and above at [1]. An HHI value of 1 implies a firm use only one debt type in its capital structure. And also implies perfect debt specialization. Firm specific controls are as in Table 1.

	(1)	(2)	(3)	(4)	(5)	(6)
	HHI	**HHI**	**HHI**	**HHI**	**HHI**	**HHI**
Table 6C:						
Bank Debt	-0.0505***	-0.0414***	-0.0556***			
	(-6.34)	(-4.32)	(-5.24)			
Market Debt				0.0554***	0.0691***	0.0627***
				(7.17)	(7.99)	(6.15)
Entrenched			-0.0275***			-0.0120
			(-3.12)			(-1.19)
BankdebtxEntrenched		-0.0195*	0.0155			
		(-1.69)	(0.97)			
MktdebtxEntrenched					-0.0343***	-0.0198
					(-3.52)	(-1.27)
Ln(Size)	-0.00755***	-0.00741***	-0.00788***	-0.00812***	-0.00851***	-0.00844***
	(-4.11)	(-4.03)	(-4.28)	(-4.41)	(-4.62)	(-4.58)
Profitability	-0.0106*	-0.0103*	-0.0100*	-0.0102*	-0.00982*	-0.00962*
	(-1.95)	(-1.89)	(-1.84)	(-1.88)	(-1.80)	(-1.76)
Tangibility	0.0228*	0.0240*	0.0251*	0.0206	0.0216	0.0226*
	(1.69)	(1.78)	(1.86)	(1.53)	(1.60)	(1.68)
MB	-0.000239	-0.000230	-0.000226	-0.000229	-0.000225	-0.000218
	(-0.59)	(-0.57)	(-0.56)	(-0.57)	(-0.56)	(-0.54)
Constant	0.771***	0.770***	0.784***	0.729***	0.732***	0.737***
	(50.03)	(49.86)	(48.66)	(48.65)	(48.81)	(47.63)
Model	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
N	7232	7232	7232	7232	7232	7232
pseudo R^2	0.044	0.046	0.053	0.052	0.060	0.061

NOTE: t-stats in parentheses * p:0.10, ** p:0.05, *** p:0.01

TABLE 7: Alternative Measure of Debt Specialization

This table presents multivariate analysis using a tobit regression model. The dependent variable EXCL90- which proxy for debt specialization and creditors concentration. EXCL90 is equal to 1 if a debt type/sub-debt constitutes at least 90% of firm total debt. E-Index is the entrenchment index (Bebchuk, Cohen & Ferrel 2009).Construction of firm specific vaiables are as in Table 1Column 1 reports the results for all firms. A firm is entrenched if its E-Index score is greater or equal 3 (median)

	(1)	(2)	(3)	(4)
	EXCL90	EXCL90	EXCL90	EXCL90
Table 7:				
Bank Debt	-0.0672		-0.118	
	(-1.44)		(-1.52)	
BankDebtxEntrenched	-0.115**		-0.194**	
	(-2.01)		(-2.03)	
Market Debt		0.112***		0.187***
		(2.67)		(2.69)
MktdebtxEntrenched		-0.0982**		-0.161**
		(-2.06)		(-2.06)
Ln(Size)	-0.0291***	-0.0306***	-0.0478***	-0.0499***
	(-2.93)	(-3.07)	(-2.95)	(-3.06)
Profitability	-0.0240	-0.0223	-0.0370	-0.0347
	(-0.35)	(-0.32)	(-0.33)	(-0.31)
Tangibility	0.101	0.0887	0.165	0.146
	(1.52)	(1.34)	(1.52)	(1.35)
MB	-0.00146	-0.00149	-0.00221	-0.00228
	(-0.55)	(-0.56)	(-0.51)	(-0.54)
Cashflow Volatility	0.103*	0.104*	0.164*	0.165*
	(1.77)	(1.79)	(1.71)	(1.72)
Dividend Payer	-0.0193	-0.0209	-0.0310	-0.0340
	(-0.57)	(-0.61)	(-0.56)	(-0.61)
Book Leverage	-0.0254	-0.0264	-0.0401	-0.0417
	(-0.84)	(-0.86)	(-0.80)	(-0.82)
Constant	-0.134*	-0.200***	-0.205	-0.320**
	(-1.71)	(-2.59)	(-1.60)	(-2.54)
Model	Probit	Probit	Logit	Logit
N	7051	7051	7051	7051
pseudo R^2	0.004	0.004	0.004	0.004

***TABLE 8**: Debt Specialization Following the 2008 Financial Crisis*

This table presents multivariate analysis using a tobit regression model. The dependent variable is HHI- which proxy for debt specialization and creditors concentration. HHI is censored below at [0] and above at [1]. An HHI value of 1 implies a firm employ only one debt type in its capital structure. And also implies perfect debt specialization. An HHI value of zero is associated with equal usage of all seven debt types. Entrenched is a dummy variable equals 1 if the entrenchment index (Bebchuk, Cohen & Ferrel 2009) E-Index$>=$ 3. Post is a dummy equals one for years after 2008 Financial Crisis.Construction of firm specific controls are as in Table 1. Bank debt is the sum of term loans and revolving credit facilities adjusted by total debt. Market Debt is the sum of commercial paper senior bonds-and-notes and subordinate bonds-and-notes adjusted by total debt.

	(1)	(2)	(3)	(4)
	HHI	**HHI**	**HHI**	**HHI**
Table 8:				
Post	0.0482***	0.0371***	0.0493***	0.0456***
	(6.28)	(5.17)	(6.43)	(6.22)
PostxEntrenched	-0.0394***		-0.0397***	
	(-4.80)		(-4.85)	
PostxEntrenchedxBank Debt		-0.0362***		
		(-2.67)		
PostxEntrenchedxMarket Debt				-0.0609***
				(-4.91)
Bank Debt	-0.0563***	-0.0472***		
	(-6.80)	(-5.12)		
Market Debt			0.0624***	0.0793***
			(7.77)	(9.19)
$Ln(Size_{t-1})$	-0.00941***	-0.00903***	-0.0101***	-0.0103***
	(-4.83)	(-4.63)	(-5.17)	(-5.25)
$Profitability_{t-1}$	-0.00277	-0.00341	-0.00175	-0.00215
	(-0.50)	(-0.62)	(-0.32)	(-0.39)
$Tangibility_{t-1}$	0.0362***	0.0346**	0.0332**	0.0300**
	(2.58)	(2.46)	(2.37)	(2.14)
MB_{t-1}	0.000405	0.000376	0.000470	0.000452
	(1.00)	(0.92)	(1.16)	(1.11)
Constant	0.763***	0.757***	0.715***	0.708***
	(46.81)	(46.06)	(44.88)	(44.31)
Model	Tobit	Tobit	Tobit	Tobit
N	6710	6710	6710	6710
pseudo R^2	0.085	0.072	0.095	0.096

***TABLE 9**: Accounting for Pre-Existing Debt Trend*

:A potential concern is that managers base their decision on existing debt level or pre-existing debt trend.This table presents multivariate analysis using a tobit regression model. The dependent variable is HHI- which proxy for debt specialization and creditors concentration. HHI is censored below at [0] and above at [1]. An HHI value of 1 implies a firm use only one debt type in its capital structure. And also implies perfect debt specialization. An HHI value of zero is associated with equal usage of all seven debt types. Entrenched is a dummy variable equals 1 if the entrenchment index (Bebchuk, Cohen & Ferrel 2009) E-Index>= 3. Post is a dummy equals one for years after 2008 Financial Crisis.Construction of firm specific controls are as in Table 1: Ln(size) is the natural log of total assets. Profitability is the operating income before depeciation (OIBD) adjusted by total assets. Tangibility is net property and equipment (PPENT) adjusted by total assets. Market leverage is total debt adjusted by total debt plus market value of equity. Book leverage is total debt divided by total assets. MB is the sum of market value of equity, total debt, preferred stock liquidation value less deferred taxes adjusted by total assets. Bank debt is the sum of term loans and revolving credit facilities adjusted by total debt. Market Debt is the sum of commercial paper senior bonds-and-notes and subordinate bonds-and-notes adjusted by total debt.

	(1)	(2)	(3)	(4)	(5)	(6)
	HHI	HHI	HHI	HHI	HHI	HHI
PANEL A:						
Entrenched	-0.0171***	-0.0288***	-0.0147***	-0.0258***	-0.0142**	-0.0255***
	(-3.02)	(-4.15)	(-2.60)	(-3.74)	(-2.51)	(-3.69)
L2.HHI	0.609***		0.604***		0.606***	
	(57.78)		(57.59)		(57.86)	
L4.HHI		0.475***		0.469***		0.472***
		(36.83)		(36.54)		(36.79)
Market Debt			0.0590***	0.0672***		
			(8.51)	(7.86)		
Bank Debt					-0.0590***	-0.0642***
					(-8.22)	(-7.24)
Firm Controls	YES	YES	YES	YES	YES	YES
Model	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
N	5721	4644	5721	4644	5721	4644
pseudo R^2	2.508	1.431	2.575	1.502	2.571	1.491
	All	All	HE	HE	LE	LE
E-Index	-0.00635***	-0.0101***	-0.0186***	-0.0287***	0.00692	0.0119**
	(-3.00)	(-3.89)	(-3.01)	(-3.83)	(1.45)	(2.04)
L2.HHI	0.609***		0.607***		0.605***	
	(57.86)		(37.87)		(43.20)	
L4.HHI		0.476***		0.479***		0.466***
		(36.90)		(24.47)		(27.19)
Firm Controls	YES	YES	YES	YES	YES	YES
Model	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
N	5721	4644	2506	2050	3215	2594
pseudo R^2	2.508	1.428	2.341	1.349	2.760	1.611

***TABLE 10**: Joint Determinants of Debt Types*

:This table presents multivariate analysis on joint determinant and simultaneous usage of debt types. The dependent variable is each debt type from Compustat. Entrenched is a dummy variable equal to 1 if the entrenchment index (Bebchuk, Cohen & Ferrel 2009) E-Index>= 3.Construction of firm specific controls are as in Table 1: Ln(size) is the natural logarithms of total assets. Profitability is the operating income before depeciation (OIBD) scaled by total assets. Tangibility is net property and equipment (PPENT) scaled by total assets. Market leverage is total debt adjusted by total debt plus market value of equity. Book leverage is total debt divided by total assets. MB is the sum of market value of equity, total debt, preferred stock liquidation value less deferred taxes adjusted by total assets. All firm specific variables are lagged, variable construction is consistent with Lee (2016)

	(1)	(2)	(3)	(4)
	Bankdebt	**Convertdebt**	**Cap.Leases**	**Bond-and-Notes**
Table 10:				
Entrenched	-0.0122	-0.0261**	-0.00786**	0.0612**
	(-0.91)	(-2.50)	(-2.49)	(2.27)
Convertible Debt	0.179***		-0.130***	2.247***
	(11.08)		(-22.62)	(164.64)
Capitalised Leases	0.306***	-0.487***		1.425***
	(10.48)	(-25.22)		(29.26)
Bonds-and-Notes	-0.0397***	0.344***	0.0588***	
	(-6.26)	(164.41)	(26.73)	
Bank Debt		0.0868***	0.0433***	-0.128***
		(11.33)	(10.63)	(-6.51)
$Ln(Size_{t-1})$	-0.00199	-0.0162***	-0.000472	0.0382***
	(-0.54)	(-5.78)	(-0.50)	(5.26)
$Profitability_{t-1}$	0.00726	-0.00717	-0.00317	0.0398**
	(0.79)	(-1.13)	(-0.89)	(2.47)
$Tangibility_{t-1}$	0.0680**	-0.0950***	-0.00338	0.321***
	(2.54)	(-4.66)	(-0.51)	(6.09)
MB_{t-1}	-0.000623	0.000216	0.000228	-0.000886
	(-1.10)	(0.55)	(1.06)	(-0.88)
Cashflow Volatility	0.0186	-0.0318***	-0.0108**	0.129***
	(1.38)	(-3.22)	(-2.43)	(5.08)
Constant	0.0822**	0.142***	0.00750	-0.337***
	(2.58)	(6.01)	(0.80)	(-5.52)
Year F.E	YES	YES	YES	YES
Industry F.E	YES	YES	YES	YES
N	7964	7964	7964	7964
R^2	0.0418	0.797	0.117	0.801

***TABLE 11A**: Managerial Entrenchment and Debt Specialization*

:This table presents multivariate analysis using a tobit regression model. The dependent is Herfindahl-Hirschman Index(HHWI) constructed from Compustat four debt types[Convertible debt, capitalised leases, bank debt and bonds-and-notes]. E-Index is the entrenchment index (Bebchuk, Cohen & Ferrel 2009).Construction of firm specific controls are as in Table 1: Ln(size) is the natural logarithm of total assets. Profitability is the operating income before depeciation (OIBD) adjusted by total assets. Tangibility is net property and equipment (PPENT) adjusted by total assets. Market leverage is total debt adjusted by total debt plus market value of equity. Book leverage is total debt divided by total assets. MB is the sum of market value of equity, total debt, preferred stock liquidation value less deferred taxes adjusted by total assets

	(1)	(2)	(3)	(4)	(5)	(6)
	HHWI	**HHWI**	**HHWI**	**HHWI**	**HHWI**	**HHWI**
Table 11A:						
E-Index	-0.00754***	-0.00754***	-0.00753***	-0.00746***	-0.00754***	-0.00751***
	(-3.37)	(-3.37)	(-3.36)	(-3.36)	(-3.37)	(-3.38)
Bonds-and-Notes		-0.0000225				0.00316
		(-0.02)				(1.35)
Capitalised Leases			-0.0428**			-0.0298
			(-2.28)			(-1.53)
Bank Debt				-0.0897***		-0.0882***
				(-11.41)		(-11.12)
Convertible Debt					-0.00363	-0.00908
					(-0.91)	(-1.12)
Constant	0.850***	0.850***	0.849***	0.857***	0.850***	0.858***
	(57.76)	(57.76)	(57.75)	(58.62)	(57.76)	(58.54)
Firm Controls	YES	YES	YES	YES	YES	YES
Model	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
N	8820	8820	8820	8820	8820	8820
pseudo R^2	0.124	0.124	0.126	0.171	0.124	0.173

***TABLE 11B**: Managerial Entrenchment and Debt Specialization*

:This table presents multivariate analysis using a tobit regression model. The dependent is Herfindahl-Hirschman Index(HHWI) constructed from Compustat four debt types[Convertible debt, capitalised leases, bank debt and bonds-and-notes]. G-Index is the entrenchment index (Gompers, Ishii & Metrick 2003).Construction of firm specific controls are as in Table 1: Ln(size) is the natural log of total assets. Profitability is the operating income before depeciation (OIBD) adjusted by total assets. Tangibility is net property and equipment (PPENT) adjusted by total assets. Market leverage is total debt adjusted by total debt plus market value of equity. Book leverage is total debt divided by total assets. MB is the sum of market value of equity, total debt, preferred stock liquidation value less deferred taxes adjusted by total assets

	(1)	(2)	(3)	(4)	(5)	(6)
	HHWI	**HHWI**	**HHWI**	**HHWI**	**HHWI**	**HHWI**
Table 11B:						
G-Index	-0.00270**	-0.00270**	-0.00270**	-0.00264**	-0.00270**	-0.00268**
	(-2.47)	(-2.47)	(-2.47)	(-2.44)	(-2.47)	(-2.47)
Bond-and-Notes		-0.0000142				0.00317
		(-0.01)				(1.36)
Capitalised Leases			-0.0429**			-0.0299
			(-2.28)			(-1.54)
Bank Debt				-0.0897***		-0.0882***
				(-11.41)		(-11.11)
Convertible Debt					-0.00361	-0.00911
					(-0.90)	(-1.12)
Constant	0.851***	0.851***	0.851***	0.858***	0.852***	0.859***
	(53.60)	(53.60)	(53.59)	(54.39)	(53.61)	(54.32)
Firm Controls	YES	YES	YES	YES	YES	YES
Model	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
N	8820	8820	8820	8820	8820	8820
pseudo R^2	0.122	0.122	0.124	0.169	0.122	0.171

Chapter 3

Policy Uncertainty and Cash Dynamics

3.1 Introduction

Why do we observe imperfect adjustment of cash? And what is the role of adjustment costs in cash holdings decisions? What are the sources of these adjustment costs? While extant literature (Jiang and Lie, 2016, Dittmar and Duchin, 2011) has documented the slow speed of adjustment of cash, there is very little empirical work on conditions under which firms may optimally deviate from target cash. In this paper, we exploit one potential condition and source of adjustment costs, namely policy-related uncertainty. The goal of this paper is to fill an important gap in the literature by establishing a consistent link between uncertainty, speed of adjustment and cash holdings. In the process we aim to evaluate the joint effects of policy uncertainty-induced adjustment costs and financing frictions on the speed of adjustment (SOA) toward target cash.

Policy-related uncertainty induces financing frictions. That is, uncertainty

creates a wedge between the benefit of current period liquid assets and costly external finance in future states. These financing frictions lead to an increase in adjustment costs[1], which invariably affect the frequency with which firms rebalance cash holdings. Intuitively, we would expect that policy uncertainty-induced adjustment costs would slow down the speed of adjustment (SOA) of cash, and that such costs would also be higher for firms that operate below target cash than for firms that operate above target cash. Specifically, due to costly external finance in future states, firms that operate below target cash have a strong incentive to increase cash holdings. Firms that operate above target cash tend to reduce investment due to precautionary delays. Consistent with this hypothesis, our results suggest that there is an inverse relationship between policy uncertainty and speed of adjustment (SOA) of cash. Additionally, as policy uncertainty heightens, firms that operate above target cash tend to decelerate speed of adjustment (SOA) while firms that operate below target cash tend to accelerate speed of adjustment (SOA).

In this study, we focus mainly on the effects of policy uncertainty shocks on speed of adjustment (SOA) of cash toward target. We first document that the speed of adjustment (SOA) of cash is imperfect and then examine the effects of policy uncertainty-induced financing frictions and adjustment costs on SOA. To measure the speed of adjustment of cash, we follow the two-stage procedure outlined in Jiang and Lie (2016), Byoun

[1]See Baker, Bloom and Davis (2016), Pastor and Veronesi (2012,2013), Gungoraydinoglu et al. (2017) for a discussion on real effects of policy uncertainty.

(2008), Dittmar and Duchin (2011) and Flannery and Rangan (2006). In the first stage, we estimate optimal cash as the predicted value of cash from Bates et al (2009) and Opler et al. (1999) models of cash holdings. In the second stage, we estimate a fixed effect model and regress the change in cash holdings against deviation of current cash holdings from optimal cash holdings. The coefficient of deviation from target cash in the second stage regression is the estimated speed of adjustment of cash (SOA). A coefficient value of "1" indicates perfect adjustment toward target and a coefficient value of less than "1" indicates imperfect adjustment toward target. For the overall sample, we estimate that the speed of adjustment toward target cash is approximately 26%, which is statistically consistent with the estimated values in the extant literature. In terms of half-lives- that is, the time it takes for the average firm to adjust one-half the distance to its optimal (target) cash- the speed of adjustment translates to about 2.3 years.[2]

To measure uncertainty, we use Baker, Bloom and Davis (2016) index as our proxy for political and regulatory uncertainty. The index accounts for policy-related uncertainty separate from general macroeconomics uncertainty. The first component of the index takes into account the effects of news articles from the ten major newspapers in the U.S. In order for an article to be included in the index, it has to contain at least one word related

[2]Consistent with prior literature, in the subsample analyses, we find that on average the estimated speed of adjustment of cash is between 21% and 50% The wide range in value of SOA reflects the susceptibility of subsample analyses to outlier effects, that SOA is heterogeneous in the cross-section.

to uncertainty, at least one word related to policy and at least one word related to the economy. The second component takes into account dispersion in analyst forecasts. And the third component takes into account the effects of tax provisions that are set to expire in the immediate future. The overall index is then computed as the normalized average weight of the three components. On average, the index is significantly correlated with periods during which we would expect increase in economic and political debates such as 9/11, the great recession and the 2013 government shut down[3]. Higher values of the index are associated with an increase in cash holdings (Duong et al. 2017), a decline in investment (Gulen and Ion 2016) and an increase in adjustment costs and financing costs (Pastor and Veronesi 2012, 2013). We find that there is asymmetry in adjustment speeds; firms that tend to hold more cash tend to have a higher SOA than firms that hold less cash. We also find that during periods of significant policy related uncertainty, high cash holdings firms tend to decelerate speed of adjustment (SOA) at a faster rate than low cash holdings firms. The first result suggests that it is easier to disgorge cash than to raise it. The second result suggests that uncertainty induces adjustment costs that increase financing constraints and increase opportunity cost(s) in future states.

We also examine how firms respond to policy uncertainty shocks when the deviation of actual cash holdings from target cash is either positive or negative. Consistent with Dittmar and Duchin (2011), we find that firms with

[3]Baker, Bloom and Davis (2016):"The index spikes around consequential presidential elections and major political shocks like the Gulf wars and 9/11... has risen to historic highs after the Lehman bankruptcy and TARP legislation, debt-ceiling dispute".

positive deviation from target cash tend to have higher speed of adjustment (SOA) than firms with negative deviation. Interestingly, we find that as policy uncertainty heightens, firms that operate below target cash holdings tend to accelerate SOA while firms that operate above target tend to decelerate SOA. This result establishes that the cost of non-adjustment is greater than the cost of adjustment for firms operating below target cash level. That is, as policy uncertainty heightens, it is less costly to operate with abundant cash than to operate with scarce cash. Overall, the results are consistent with the notion that firms build up cash reserves in anticipation of a rise in financing constraints and the costs of external financing. The results establish that policy-related uncertainty plays a significant role in firms' cash holdings decisions.

Furthermore, in a battery of robustness tests, we exploit firm-level heterogeneity and examine whether policy uncertainty affects SOA of cash in the cross-section. We find that during periods of significant policy related uncertainty, firms that have low leverage tend to decelerate SOA at a faster rate than firms that have high leverage. This is because the marginal benefit of cash decreases with an increase in leverage; as a result highly leveraged firms prioritize debt reduction over cash accumulation. Additionally, during periods of policy uncertainty shocks, non-dividend payers reduce SOA faster than dividend payers. We also find that firms that are financially constrained tend to increase cash holdings significantly following policy uncertainty shocks, and as a result decelerate SOA faster than

their non-financially constrained counterparts.

To the best of our knowledge, this paper is the first to interact policy uncertainty and adjustment speed measures, and in the process to quantify the joint effect of policy uncertainty-induced adjustment costs and cash holdings decision on speed of adjustment toward target. This paper also builds on several strands of previous research. First, we contribute to the emerging literature that examines the effects of policy and regulatory uncertainty on firms' real decisions. Gulen and Ion (2016) find that policy uncertainty induces precautionary delays which negatively affect investment. Duong et al. (2017) find that policy uncertainty is positively related to cash holdings. We contribute to this literature by arguing that policy uncertainty increases adjustment costs and financing frictions, which invariably affects speed of adjustment (SOA) of cash.

Second, we contribute to the literature on cash holdings (Bates et al. 2009, Opler et al. 1999) and cash dynamics (Dittmar and Duchin 2011, Jiang and Lie 2016). While extant literature has focused on the persistence of cash ratios and the costs of deviating from target cash, in this paper we focus mainly on the effects of policy-related uncertainty on speed of adjustment (SOA) of cash. We find that policy-related uncertainty induces financing frictions and adjustment costs which decelerate speed of adjustment (SOA) of cash. The results demonstrate that there is an inverse relationship between policy-related uncertainty and speed of adjustment of cash. We also establish that policy-related uncertainty is a signifcant determinant of the

well-documented slow speed of adjustment of cash.

Third, we contribute to the general literature that estimates the speed of adjustment of capital structure (Byuon, 2009, Flannery and Rangan, 2006, Faulkender et al 2012, Lemmon, Roberts and Zender, 2008, Leary and Roberts, 2005, Huang and Ritter 2009, Strebulaev, 2007, Iliev and Welch 2010, Fama and French 2002, Elsa and Florysiak, 2011, Shyam-Sunder and Myers, 1999). In general these papers estimate the speed of adjustment as ranging from 9% to 40%[4]. In particular, Byuon (2009) examines the role of financial surpluses and deficits, and find that firms with above-target debt use financial surpluses to pay off debt while firms with below-target debt tend to retire debt and use surpluses to pay-off debt. Faulkender et al. (2012) find that adjustment costs explain heterogeneity in speed of adjustment toward target leverage, and that even when adjustment costs are equal across firms, the benefits of leverage adjustment might be different between under-levered firms and over-levered firms. We contribute to this line of thought by showing that as policy uncertainty heightens, over-levered firms tend to use internal funds (cash) to pay off debt while under-levered firms accumulate cash and decelerate SOA of cash.

The paper proceeds as follows. Section 2 presents the data and sample construction. Section 3 outlines the identification strategy and also presents empirical results. Section 4 present a battery of robustness tests. Section 5 concludes.

[4]Iliev and Welch (2010)- result is an exception, as they estimate SOA of leverage to be less than zero.

3.2 Data

3.2.1 Firm-Level Controls

The sample consists of firm-quarter samples from Compustat for the period 1985-2016. We exclude financial firms (SIC 6000-6999) since it is difficult to assess their liquidity levels. We also exclude utilities (SIC 4900-4999) since their operations, cash holdings and financial activities are heavily regulated by the government. We also require that a firm has positive asset levels and that the firm be incorporated in the U.S.

Table [1], presents summary statistics for the sample. Cash is estimated as cash and short-term investment (CHEQ) adjusted by total assets. Cash has a mean (median) of 18.23% (8.60%) which is statistically consistent with prior literature (Jiang and Lie 2016, Duchin, Ozbas and Sensoy 2010, Bates et al 2009). Observe also that there is a considerable variation in cash holdings across firms. The bottom 25^{th} per centile holds about 2.2% of their total assets in cash and the top 75^{th} per centile holds about 26.5% of their total assets in cash. The statistical distribution of cash is consistent with the extant literature (Dittmar, 2008, Dittmar and Mahrt-Smith, 2007).

Figure [3.1], presents the evolution of cash holdings over the sample period. The graph illustrates the drastic increase in cash holdings across firms over the sample period. The results confirm that the well-documented upward trend in cash holdings has continued even post-2008 financial crisis (Jiang and Lie 2016, Bates et al 2009).

The remaining firm-level variables are constructed similar to Opler et al (2009) and Bates (2009). Firm size is estimated as the natural logarithm of total assets, and leverage is the sum of short-term debt and long-term debt adjusted by total assets. In the sample, the average debt-to-asset ratio is about 31.5%, which is consistent with prior literature (Strebulaev, 2007). Net working capital is estimated as net working capital less cash and marketable securities adjusted by total assets. Tobin Q is estimated as the book value of total assets plus market value of equity less book value of equity adjusted by total assets. To control for outliers and in order to be consistent with prior literature (Jiang and Lie 2016, Duchin et al 2010), Tobin Q is bounded above 10. Dividend dummy equals to "1" if a firm pays dividend and zero otherwise. Acquisition activity is a dummy equal to "1" if a firm was involved in any acquisition activity and zero otherwise. Policy uncertainty measure is based on the Baker, Bloom and Davis (2016) index. Index construction is detailed in the next section. Cash flow is estimated as earnings after interest and taxes adjusted by total assets.

3.2.2 Measuring Policy Uncertainty

Policy uncertainty measure is based on the Baker, Bloom and Davis (2016) index. The index consists of three main components. The first component takes into account newspaper articles from the ten major newspapers in

the U.S.[5] that have at least one term in each of the following sets: "economic set", "uncertainty set" and "policy set". The economic set consists of terms such as "economic" and "economy". The uncertainty set consists of words such as "uncertain" and "uncertainty". The policy set consists of words such as "white house", " regulation", "legislation", "federal reserve", "deficit", and "congress". In order to create consistent series, and due to the variation in the number of newspapers and news articles, the number of policy related articles is adjusted by the total number of articles in each newspaper; resulting in ten series. The series are then standardized monthly so that the overall index has a mean of 100 throughout the sample period.

Secondly, Baker et al (2016) take into account uncertainty related to changes in the tax code. Tax-related uncertainty is estimated on an annual basis by discounting the expected value of tax revenue from tax-provisions that are set to expire in the next decade. The third component of the index takes into account disagreement amongst forecasters on monetary and fiscal policy. The third component also takes into account forecasts on consumer price index (CPI) and purchases of goods and services by federal, state and local governments. The forecasters' disagreement index is then estimated as the average interquartile range between the forecasts on monetary and fiscal policies and the forecast on CPI and government spending. The overall index is then computed as the weighted average of the three

[5]These papers are: The New York Times, USA Today, Miami Herald, Chicago Tribune, Washington Post, L.A Times, Boston Globe, San Francisco Chronicle and the Dallas Morning News.

components. The news-based component of the index accounts for one-half, the tax-based component of the index accounts for one-sixth and the forecasters' disagreement component of the index accounts for one-third. In Table [1] above, the index has an average of 105.68 with a standard deviation of 31.6 and an interquartile range of 42.5. The index has a high correlation with events that are expected to generate policy-related uncertainty (Baker et al 2016, Gulen and Ion 2016, Duong et al. 2017). Some of these events include: wars, financial crises, major elections and policy-related debates such as changes in debt ceilings and the size of government stimulus[6]. Policy uncertainty not only increases financing frictions and adjustment costs, but it increases market volatility as well.[7] All things considered, we would expect that as policy-related uncertainty heightens, firms would substantially substitute between external financing and internal financing, which would invariably affect the speed of adjustment of cash toward target. This conjecture is driven by the documented observation that policy-related uncertainty has negative shocks on the economy and that the effects of these shocks are larger when the economy is weaker (recessions) and when uncertainty is higher. Note that as the economy gets weaker, the probability of government intervention increases. Yet, even if government policy is welfare improving, the subsequent un-

[6]Akey and Lewellen 2016, Gulen and Ion 2016, Julio and Yook 2012, Jens 2017, Bhattacharya et al. 2017.

[7]Pastor and Veronesi (2013):"Political uncertainty pushes up not only the equity risk premium but also the volatilities and correlations of stock returns. As a result, stocks tend to be more volatile and more correlated when the economy is weak. The volatilities and correlations are higher when the potential new government policies are perceived as more heterogeneous a priori."

certainty regarding the new policy can only further magnify uncertainty-induced financing frictions and policy-induced adjustment costs. Hence, firms accumulate internal capital as a hedge against policy-related uncertainty shocks.

3.3 Identification Strategy and Empirical Results

3.3.1 Baseline Regression: Determinants of Cash Holdings

We first focus on the determinants of optimal cash holdings. We closely follow the works of Opler et al. (1999), Bates et al. (2009) and Jiang and Lie (2016) and estimate the following baseline panel regression model:

$$Cash_{it} = \mathbf{X}'\beta + \delta_i + \eta_j + \epsilon_{it} \tag{3.1}$$

where $\mathbf{X}$ is a vector of firm-specific variables which include size, Tobin Q, leverage, capex, net working capital, a dummy for level of acquisitions activity, a decade dummy and a dividend dummy. All variables are constructed as outlined in Section 2.1 above. δ_i and η_j are firm fixed effects and industry fixed effects. And ϵ_{it} is the error term. Following Petersen (2009), all standard errors are clustered at the firm-level. The estimates from Equation [1] above are reported in Table [2].

Models [1,2,3] present estimates in which cash scaled by total assets is the dependent variable and models [4,5,6] present estimates in which the dependent is the natural logarithm of cash scaled by total net assets. Net

asset is estimated as total assets less cash and marketable securities.

The estimates are generally consistent with extant literature[8]. Tobin Q has a positive coefficient, suggesting that firms with higher growth opportunities tend to hold more cash. Size has a negative coefficient, suggesting that smaller firms with promising future opportunities tend to hold more cash relative to large firms that might have access to external finance. The result reflects profitability of investment opportunities for smaller firms and the fact that larger firms tend to have greater access to long-term debt financing. On average, large firms tend to have greater access to both bank debt and market debt financing (Boughes et al. 2006). The coefficient of leverage is negative, suggesting that firms use cash to mitigate financial distress. Cash flow has a positive coefficient as firms with higher cash flow are more likely to accumulate cash. Since capex might lead to an increase in collateral base, it is negatively related to cash holdings as a large collateral base minimizes demand for cash. The coefficient for dividend is negative since firms that pay dividend tend to be less risky and generally have access to external financing. Cash and net working capital are substitute; as a result the estimated coefficient of net working capital is negative. The dummy for acquisition activity has a negative coefficient since cash tends to be a source of financing during acquisitions.

In Table [3], we include the measure of policy-related uncertainty (Baker et al. 2016) as an explanatory variable. Baker et al. (2016) overall index

[8]Bates et al 2009, Opler et al 1999

is the proxy for policy-related uncertainty. The coefficient of the policy-related uncertainty term is positive, suggesting that there is a positive relationship between cash and policy uncertainty measure. This is in part because policy-related uncertainty increases financing frictions and adjustment costs, and limits access to external financing[9]. As a result, as policy uncertainty heightens, firms increase current period cash holdings since an increase in policy uncertainty-induced adjustment costs increases opportunity costs in future states. The result is consistent with precautionary motive of cash holdings.

3.3.2 Cash Dynamics: Speed of adjustment of Cash (SOA)

To estimate the speed of adjustment (SOA) of cash, we closely follow the method of Jiang and Lie (2016), Dittmar and Duchin (2011), Venkiteshwaran (2011) and Byuon (2009)[10]. Firstly, we estimate target cash level ($cash^*_{it}$) as in Equation [1] above. In order to estimate the speed of adjustment of cash, we estimate the following partial adjustment model with firm fixed effects:

$$\{Cash_{it} - Cash_{it-1}\} = \lambda(Cash^*_{it} - Cash_{it-1}) + \delta_{it} + \epsilon_{it} \tag{3.2}$$

In the above partial adjustment model, $\{Cash_{it} - Cash_{it-1}\}$ estimates the beginning cash deviation and $\{Cash^*_{it} - Cash_{it-1}\}$ estimates the adjust-

[9] See Gilchrist and Jae, 2014

[10] A similar method is applied in the case of leverage by Flannery and Ragan,2006, Oztekin and Flannery, 2012.

ment in cash during period t. Note that ($cash^*_{it}$) is the target cash level predicted by firm-level determinants of cash holdings from Equation [1] above. Hence, the dependent variable in Equation [2] is the deviation in the current period's cash holdings against the previous period's cash holdings- that is, the dependent variable is the change in cash holdings. The indepedent variable is the deviation of target cash level from the previous period's cash holdings. The coefficient (λ) accounts for the per period portion of deviation that is eliminated. If the coefficient (λ) equal to "1", it implies perfect adjustment of cash toward target. And if the coefficient (λ) is less than "1", it implies imperfect adjustment toward target.

Table [4] presents the results from the partial adjustment model outlined in Equation [2] above. Models [1,2,3] present estimates for which the target cash ($cash^*_{it}$) is estimated from model [1] of Table [2] above. Models [4,5,6] report estimates for which the target cash level is predicted from model [2] of Table [2].[11] The coefficient of (λ) is positive across all models in Table [4]. The estimated speed of adjustment (SOA) is about 26%, which is statistically consistent with the estimates of Dittmar and Duchin (2011). Economically, an SOA estimate of 26% implies a half-life of 2.3 years[12]; the result implies that it takes the average firm about 2.3 years to adjust one-half the distance to its target or optimal cash level. The key take away from Table [4] is that SOA is positive but less than "1". Positive (λ)

[11] From untabulated table(s), the results are generally consistent when target cash is predicted using Equation [4,5,6] of Table [2].

[12] Assuming an AR(1) process, half-life is estimated as log(0.5)/log(1-SOA).

suggests that, on the margin, the benefit of cash adjustment is on average greater than the cost of adjustment toward the target. Having established that SOA is imperfect and that it is less than "1", the outstanding question then becomes: why and when do firms optimally deviate from target cash? The fact that SOA is less than perfect can be partially explained away by adjustment costs. Since policy uncertainty induces financing frictions and adjustment costs, we would expect policy-related uncertainty to adversely affect the speed of adjustment (SOA) of cash toward target.
To account for the effect(s) of policy-related uncertainty on SOA, we estimate the following augmented panel regression model:

$$\begin{aligned}\{\{Cash_{it} - Cash_{it-1}\} = \lambda(Cash^{*}_{it} - Cash_{it-1}) \\ + [\psi\{(Cash^{*}_{it} - Cash_{it-1})^{*}Uncertainty\} \\ + \delta_{it} + \epsilon_{it}\}\end{aligned} \tag{3.3}$$

The coefficient of interest is the interaction of policy uncertainty and the deviation from target cash. "Uncertainty" measure is estimated as the natural logarithm of the Baker et al (2016) Overall index. In general, higher levels of the index reflect and coincide with periods of significant policy-related uncertainty. These periods of significant policy-related uncertainty are highly correlated with an increase in financing frictions and an increase in adjustment costs. Hence, a negative coefficient of the interaction term would imply that policy-related uncertainty increases adjustment costs which might induce firms to increase cash holdings. As a result, a negative coefficient of the interaction term would suggest that the costs of adjustment increase faster than the benefit of adjustment during period(s) of

significant policy-related uncertainty.

The estimates in Table [5] confirm the above prediction. The coefficient of the interaction term is negative, suggesting that on average policy-related uncertainty leads to an increase in cash holdings and partially slows down SOA of cash. The estimates demonstrate that uncertainty induces financing frictions and creates a wedge between current period liquid assets and costly external finance in future states. As a result, firms tend to increase internal capital as a hedge against policy-related uncertainty shocks.

Jiang and Lie (2016) find that there is asymmetry in adjustment speed. That is, firms that tend to hold more cash tend to have higher SOA on average than firms that tend to hold less cash. In Table [6], we first test this hypothesis and subsequently examine whether the effects of policy-related uncertainty on SOA are heterogeneous across firms.

$$\begin{aligned}\{Cash_{it} - Cash_{it-1}\} = \{&\lambda(Cash^*_{it} - Cash_{it-1}) \\ &+ \psi[(Cash^*_{it} - Cash_{it-1})^* Uncertainty] \\ &+ \rho[(Cash^*_{it} - Cash_{it-1})^* High] \\ &+ \gamma[(Cash^*_{it} - Cash_{it-1})^* Uncertainty^* High] \\ &+ \delta_{it} + \epsilon_{it}\}\end{aligned} \tag{3.4}$$

"High" is a dummy equal to "1" if a firm's cash holding is above the sample mean and zero otherwise. The results in Table [6] indicate that the interaction term between high cash holdings and deviation from the target cash is positive, suggesting that firms with high cash holdings tend to have higher SOA than firms with lower cash holdings. This result is consistent with the hypothesis that it is generally cheaper to disgorge cash than to raise cash (Hartford et al. 2008, Dittmar and Marhrt-Smith 2007, Jiang and

Lie 2016). Note also that the results in models [3,6] suggest that such firms also tend to reduce SOA during periods of significant policy-related uncertainty. This result reflects an increase in both financing frictions and adjustment costs which lead to a decline in investment (Gulen and Ion, 2016) and increase in opportunity cost(s) in future states. As a result, high-cash holdings firms tend to accumulate cash during periods of heightened policy-related uncertainty.

Figure [3.2] illustrates the evolution of actual cash holdings and target cash. Target cash is estimated as the predicted value of cash holdings from Equation [1] above. The graph indicates that, over the sample period, the actual cash holdings of firms have been increasing significantly above the target cash holdings on average. Note that in Figure 2, we observe that firms are consistently below their target cash for the period 1985-2000, and consistently above their target cash 2000-2015. These might point to some attrition in the data. And perhaps the attrition is due to depletion in cahs reserves. There are some attrition in the data. When we examine only the 1985-2000 sample period, there are a total of 11,507 unique firms in the data. And there are 10,410 unique firms in the data for the period 2000-2015. Total attrition is about 1,097, which is about 9.5% of the original sample. Additionally, the average cash holdings for firms in the 1985-2000 period is about 15.6% and the average cash holdings for firms in the 2000-2015 period is about 21.7%. A two-tailed test difference in means is signifcant at 1% level. This suggests that firms that exited the data are

more likely to be cash poor and provides some evidence that perhaps this firms dropped out of the sample due to cash depletion. Nevertheless, there might be other potential reasons for the attrition (ex. macroeconomics, delisting etc). Overall, the results suggest that firms that remain in the sample are more likely to be cash rich and this might contribute to the rise in cash holdings over the sample period. When we only examine firms that existed throughout the entire sample period, we still observe an increase and upward trend in cash holdings. And in the face of political uncertainty firms accelerate speed of adjustment of cash (SOA). The result suggest that political uncertainty is a factor in the recent rise of cash holdings amongst U.S firms.

Figure [3.3] plots the uncertainty index based on Baker et al. (2016) against average cash and against average target cash over the sample period. For aesthetic purposes, the policy uncertainty index is scaled so that it has a statistically similar mean and variance to actual cash. The vertical lines represent periods of heightened policy-related uncertainty. These periods include: the gulf war, the tech bubble, the 2008 financial crisis, the 2010 midterm elections, and the 2012 general election. Overall, the graph indicates that there is a positive co-movement between policy-related uncertainty and cash holdings.

Jiang and Lie (2016) conjectured that the distance of actual cash from the target cash would affect the speed of adjustment (SOA). It might be the case that adjustment costs are higher for firms that operate below target

cash than above target cash. This would imply that during periods of significant policy-related uncertainty, firms that are below target would increase SOA while firms that are above target would reduce SOA[13].

In Table [7] below, we carry out subsample analyses. We first estimate the deviation between actual cash and target cash. Firms whose deviation is below zero are classified as operating below target cash level while firms whose deviation is positive are classified as operating above target level. Models [1,2] present results for firms whose deviation is positive and models [3,4] present results for firms whose deviation is negative. Observe that the speed of adjustment is faster if the deviation is positive than if the deviation is negative. Consistent with our hypothesis, we find that as policy-related uncertainty heightens, firms that operate below target cash level tend to accelerate SOA while firms that operate above target cash level tend to decelerate SOA. This result is consistent with Venkiteshwaran (2011), who finds that adjustment speed for firms with significant excess cash tend to be slower than for those firms that operate with scarce or below target cash. Policy-related uncertainty exacerbates this effect and firms operating below target cash tend to increase SOA during periods of heightened uncertainty. The results demonstrate that during periods of heightened policy uncertainty, it is less costly to operate with abundant cash than to operate with scarce cash. The results demonstrate that cash serves as a hedge against policy uncertainty-induced financing frictions

[13]This hypothesis is consistent with the argument of Fisher, Heinkel and Zechner (1989) that firms will only converge toward target leverage if the benefit of doing so is greater than the cost.

and adjustment costs.[14]

3.4 Robustness Tests

3.4.1 Uncertainty, Leverage and Cash Dynamics

Firms with high leverage may react differently to policy uncertainty shocks than firms with low leverage. For instance, as a firm's debt-to-asset ratio becomes abnormally high, the firm tends to use internal capital to reduce debt (Auerbach, 1985). This is because the marginal value of cash holdings decreases with an increase in leverage (Faulkender and Wang, 2006). Since policy uncertainty increases adjustment costs, we would expect that policy uncertainty will invariably accelerate this debt reduction process. Specifically, during periods of heightened policy-related uncertainty, firms with a high level of leverage are more likely to use cash to mitigate the adverse effects of leverage on firm value. Contrastingly, firms that have a low level of leverage are more likely to increase cash holdings and reduce speed of adjustment (SOA).

In Table [8], firms are sorted based on level of leverage. Firms whose leverage is below the sample mean are classified as "Low Leverage" firms, and firms whose leverage is above the sample mean are classified as "High Leverage" firms. In models [1,3] of Table [8], the coefficient of the interaction term between uncertainty and deviation from the target is nega-

[14] See Acharya, Davydenko and Strebulaev, 2012, Acharya et al 2007 for a discussion on the hedging role of cash

tive, suggesting that these firms (low leverage) lower SOA and increase cash holdings levels during periods of significant politicy related uncertainty. Observe that policy uncertainty has no significant effect in the case of highly levered firms. This result suggests that highy levered firms prioritize debt repayment over cash accumulation since the marginal benefit of cash holdings decreases with a marginal increase in total debt. The result is consistent with Gonzalez et a.l (2007) who fnd that highly levered firms have less desire for additional external financing. As a result, these firms utilize internal funds to reduce debt. Overall, the estimates in Table [8] are consistent with the findings of Jiang and Lie (2016) and suggest that the effect of leverage on SOA is asymmetric. However, mean leverage sorting is susceptible to the outliers effect due to the right-skewed nature of leverage distribution.

In Table [8] panel [B], we present estimates in which firms are sorted and classified based on whether firm leverage is above or below the sample median. The results in Table [8] panel [B] are consistent with those reported in Panel [A]. The results are generally consistent with the notion that firms have a strong preference for debt capacity preservation (Byuon, 2009, Lemmon and Zender, 2004). These results are also consistent with Faulkender et al. (2012) finding that even if leverage adjustment costs were equal for under-levered and over-levered firms, the benefits may be asymmetrical as potential financial distress costs loom quite large for over-levered firms. To the extent that policy-related uncertainty increases financing frictions,

we would expect that the effect of policy-related uncertainty on SOA would be stronger for firms that rely more on external financing. To measure the degree of external finance dependence, we follow Rajan and Zingales (1998) and estimate external finance dependence as capital expenditure net of funds from operations scaled by capital expenditure. We also measure equity dependence as the ratio of net amount of equity issued to capital expenditure. Table [8] Panel [C] presents estimates in which firms are sorted by whether they are below or above median level of external finance dependence measure(s). Consistent with our hypothesis, the results demonstrate that the effects of policy-related uncertainty on SOA are stronger for firms that are highly dependent on equity and external financing.

3.4.2 Uncertainty, Payout Policy and Cash Dynamics

During periods of heightened policy-related uncertainty, firms that pay dividend might behave differently than those firms that do not pay dividend. Prior literature suggests that firms that pay dividend tend to have about 6.2% lower leverage than their non-dividend paying counterparts (Leary and Michealy, 2005). In addition, dividend payers tend to have lower cash holdings than non-dividend payers (Brown and Kapadia, 2007). In the sample, dividend-payers hold about 13.3% of total assets in cash while non-dividend payers hold about 18.8% of total asset in cash.
In particular, since non-dividend payers tend to be financially constrained

and to have limited access to external financing relative to their dividend-paying counterparts[15], we would expect that during periods of significant policy-related uncertainty, non-dividend payers would adjust SOA faster than dividend-payers. In this case, the expected sign of the coefficient of the interaction term would be negative, reflecting deceleration in SOA and increase in cash holdings amongst non-dividend payers.

Table [9] presents estimates in which firms are sorted by whether they are dividend-payers or non-dividend payers. Models [1,3] present estimates for dividend-payers while models [2,4] present estimates for non-dividend payers. The results suggest that during periods of heightened policy-related uncertainty, non-dividend payers decelerate SOA. However, there is no evidence that policy-related uncertainty has any effects on dividend-payers. The coefficient for dividend-payers is positive but statistically insignificant. This is partly because the choice to distribute permanent and temporary earnings implies that firms have the capability and access to finance dividend pay-out, and that there is a penalty associated with the failure to pay expected dividend.[16] Hence, the second reason for the non-adjustment of SOA for dividend-payers might reflect the lack of flexibility and the market penalty associated with failure to issue dividend. Thus, in the face of significant policy-related uncertainty shocks, firms might continue to prioritize paying dividend over cash accumulation. The results

[15] See Almeida, Campello and Weisbach (2004), Fazzari and Petersen (1993) for this argument.

[16] Jagannathan, Stephens and Weisbach (2000) find that about 90% of CFOs agree that there are negative consequences to not paying dividend.

are also consistent with Jensen's (1986) free cash flow hypothesis. In particular, Jensen (1986) argues that non-dividend payers with poor growth options will accumulate cash; to this end policy-related uncertainty exacerbates cash accumulation and results in a slower speed of adjustment of cash (SOA).

3.4.3 Uncertainty, Stock Repurchases and Cash Dynamics

Since stock repurchases give firms the flexibility (Grullon and Michaely, 2002, 2004, Dittmar 2008) without facing a significant penalty from the market, we should expect some variation in how firms with different levels of stock repurchases adjust SOA of cash. In Table [10], firms are sorted into terciles based on the level of stock repurchases. The estimates in models [1,2,4,5] suggest that, as policy-related uncertainty heightens, firms in the low and medium tercile of stock repurchases partially lower SOA of cash.

The estimates reported in model [3] suggest that firms in the upper tercile of stock repurchases tend to increase SOA, but once we account for year fixed effects in model [6] this result largely disappears. This is in part because firms in the upper tercile tend to use internal funds (cash) for stock repurchases. Meanwhile firms in the lower tercile of stock repurchases have the flexibility to increase cash holdings during periods of significant policy-related uncertainty. The flexibility comes from the observaton that, unlike dividend issuance, the market does not treat the announcement of

stock repurchases as a credible and permanent commitment (Jagannathan et al, 2000); indeed about 20% of firms that announce stock repurchases do not follow through and only 54% of firms that announce stock repurchases tend to follow through in the immediate quarter following the announcement.

3.4.4 Uncertainty, Cash Volatility and Cash Dynamics

Since younger firms tend to have limited access to external financing and also to experience greater volatility in cash, we would expect that the marginal benefit of cash should be higher on average for younger and smaller firms than for older and larger firms. Shipe (2015) finds that cash volatility affects firm value and that cash adjustment is higher for firms that face higher cash volatility[17] .

In this section, we examine whether the effects of cash volatility are heterogeneous in the cross-section. Cash volatility is estimated as a firm's quarterly standard deviation of cash over the whole sample period. To smooth out outlier effects, we also require that a firm has positive cash holdings and that a firm has observations for at least eight quarters or two-years. Firms are then sorted into terciles based on the level of cash volatility. Since firms that experience higher cash volatility are more susceptible to uncertainty shocks, we would expect that such firms reduce speed of cash

[17]Note that cash volatility is separate from cash flow volatility. Generally, cash flow volatility is associated with lower investment and higher risk (Minton and Schrand, 1999), while cash volatility is positively related to firm value (Shipe 2015).

adjustment (SOA) at a faster rate than firms in the lower tercile of cash volatility.

The results in Panel [A] of Table [11] confirm this hypothesis. Models [3,6] report the estimates for firms in the top tercile of cash volatility. The results suggest that such firms decelerate SOA at a faster rate than firms in the bottom tercile of cash volatility. Models [1,4] present the estimates for firms in the bottom tercile. We can observe that while the coefficient is positive and statistically significant at the 1% significance level in model [1], this result disappears once we take into account year fixed effects. Overall, the results in Table [11] suggest that firms that experience higher cash volatility are more susceptible to the adverse effects of policy-related uncertainty shocks and as a result are more responsive to adjusting cash holdings. The results also suggest that younger firms- which on average have higher cash volatility- tend to have higher investment opportunities and face significant opportunity cost(s) in future states. Hence, such firms tend to decelerate speed of adjustment (SOA) of cash during periods of heightened policy-related uncertainty. The results are consistent with the notion that firms with higher cash flow volatility require significantly more in external financing than firms with stable cash flow. In order to hedge against an increase in cost of external financing, such firms increase cash holdings during periods of significant policy-related uncertainty.

Dittmar and Duchin (2011) find that firms that experience large cash flow shocks tend to hoard cash. Thus, we would expect that as policy-related

uncertainty heightens, firms with high cash flow volatility would significantly increase cash holdings and decelerates SOA. The significant increase in policy-related uncertainty-induced adjustment costs imply that firms with significant cash flow volatility would take longer to rebalance back to target cash. In panel [B] of Table [11], firms are sorted into terciles based on cash flow volatility. Similar to Leary and Roberts (2005) estimation strategy, cash flow volatility is estimated as the standard deviation of profitability over the entire sample period. We also require that a firm has at least 3 years of data available. Note that profitability is estimated as the ratio of operating income before depreciation (OIBDQ) scaled by total assets. The results in panel [B] suggest that firms that face high cash flow volatility tend to decelerate SOA at a faster rate during periods of significant policy-related uncertainty than firms in the low tercile of cash flow volatility. This result is attributable to cash flow volatility being positively correlated with risk. Firms that tend to be riskier face higher adjustment costs and also face higher opportunity cost(s) in future states. Such firms are therefore more likely to accumulate cash during periods of significant policy-related uncertainty, which results in a reduction in the speed of adjustment of cash (SOA).

3.4.5 Uncertainty, Financial Constraints and Cash Dynamics

Since financially constrained firms tend to face higher costs in accessing external financing than their unconstrained counterparts (Fazzari et al. 1988),

we should expect that such costs will only increase further with increase in policy-related uncertainty. This is because firms differ in both the cost and the benefit of adjusting towards target cash.[18] All things considered, we would expect that financially constrained firms would decelerate SOA at a faster rate than financially unconstrained firms.

Leary and Michaely (2005) find that firms with net negative income are more likely to be financially constrained than firms with positive net income. Hence, on average, we should expect that in the face of significant policy-related uncertainty shocks, firms in the lower tercile of net income distribution will be more likely to decelerate SOA. In Table [12], firms are sorted into terciles based on their level of net income. Consistent with Bates et al. (2009) ,in the sample we find that firms that are in the "low" tercile of net income distribution hold about 24.7% of assets in cash while firms that are in the "high" tercile of net income distribution hold about 18.2% of assets in cash. The results reported in Table [12] largely support the notion that financially constrained firms are more responsive to policy-related uncertainty shocks. Firms in the "low tercile" of net income distribution (models 1,4) decelerate SOA at a faster rate than firms in the "high tercile" of net income distribution (models 4,6). The estimates support the precautionary motive of cash holdings and suggest that during periods of significant policy-related uncertainty, financially constrained firms are more likely to increase cash holdings and to decrease speed of adjustment

[18]Korajczk and Levy (2003) find that the cost of leverage and SOA of leverage differ between "constrained" and "unconstrained" firms.

(SOA) of cash.

In Table [12] Panel [B], we use alternative measures of financial constraints and consider the effects of policy-related uncertainty on SOA. These measures of financial constraints are: the Whited- Wu (2006) index (WW Index henceforth), firm size and payout ratio. Firms are classified as financially constrained or unconstrained by dividing the sample at the median. Firms whose WW Index is above median are classified as financially constrained. Firms whose size is below median are classified as financially constrained. Firms whose pay-out ratio is below median are classified as financially constrained. The results in Panel [B] are generally consistent with those reported in Panel [A]. Financially constrained firms decelerate SOA at a faster rate than their unconstrained counterparts. Financially constrained firms increase cash holdings in anticipation of increase in the cost of external finance and potentially limited access to external financing in future states.

3.4.6 Accounting for the Effects of Liquidity Risk

Firms with low liquidity levels tend to face higher distress costs and limited access to external financing (Fazzari et al 1988, Acharya, Davydenko and Strebulaev, 2012). Hence, as policy-related uncertainty heightens, firms with low liquidity might find it more costly to adjust SOA than firms with high liquidity. This is because policy uncertainty accelerates this acute cash flow shortage and increases financing frictions. As such,

we should expect that as policy uncertainty heightens, firms that face low liquidity risk will on average decelerate SOA at a faster rate than firms that face high liquidity risk.

Similar to Acharya et al (2012), we use interest coverage ratio as the proxy for liquidity risk. Interest coverage ratio is estimated as income before depreciation scaled by interest expense. Interest coverage ratio proxies for the ability of a firm to pay-off its interest expense. Table [13] presents subsample analyses in which firms are sorted on whether their interest coverage ratios are above or below the sample median. Firms whose interest coverage ratios are below the sample median are classified as "Low" liquidity firms and firms whose interest coverage ratios are above the sample median are classified as "High" liquidity firms. Note that low liquidity firms tend to be riskier than high liquidity firms. Observe that in Table [13] the coefficient of the interaction term in column [2] is greater than in column [1]. The results in columns [1&2] confirm the prediction that firms in the low liquidity category adjust SOA at a slower rate than firms in the high liquidity category. That is, low liquidity firms do not effectively respond to policy-related uncertainty shocks.

To further test the above hypothesis, we also use commonly employed balance sheet measures of liquidity. These measures are: quick ratio, current ratio and working capital-to-total assets ratio. Following Davydenko (2010), quick ratio is estimated as current assets net of inventories scaled by current liabilities. Quick ratio is a robust proxy for liquidity risk since

financially distressed firms find it more costly to convert inventories into cash. Consistent with prior literature, current ratio is estimated as current assets scaled by current liabilities. The results in columns [3-8] of Table [13] lend support to the notion that due to cash flow shortage and an increase in financing frictions during periods of significant policy-related uncertainty, firms that face higher liquidity risk find it more costly to adjust SOA.

3.4.7 Alternative Measures of Policy Uncertainty

The index is high when economic conditions are relatively poor and low when economic conditions are strong. This criticism is constructive in the sense that there is a strong correlation between EPU and general macroeconomics conditions. Since policy makers are more likely to intervene in the economy during recessions than during booms, there is no ”clean” identication for policy related uncertainty. But to supplement EPU measure, we use a proxy that takes into account election related uncertainty. If firms indeed increase cash holdings to mitigate against uncertainty, then it is likely that firms would make decisions prior to the election year. In this case, we assume that midterm elections are indicative of potential political uncertainty. In the U.S, midterm elections occur two years prior to the general election. In the Table below, election dummy takes the value of “1” for the two years preceeding the general election. The results below are consistent with those under EPU: In the face of policy related uncertainty firms

increases cash holdings and decelerate SOA. Using electoral uncertainty has an alternative measure of policy uncertainty yields consistent results.

3.4.8 Accounting for Firm Size

Small firms have limited access to external finance and are therefore more likely to be responsive in the face of policy related uncertainty. Indeed, The evidence shows that in the face of policy related uncertainty, small firms decelerate SOA at a faster rate than large firms.

3.5 Conclusion

Previous research has established that firms slowly and imperfectly adjust cash toward target. However, there is little consensus and evidence on what drives and explains the slow speed of adjustment toward target. In this paper, we provide evidence that policy-related uncertainty partially explains the slow speed of adjustment (SOA) of cash. Policy-related uncertainty induces adjustment costs and financing frictions and as a result creates a wedge between the benefit of current period's liquid assets and costly external finance in future states. These policy uncertainty-induced costs lead to an increase in cash holdings and a deceleration in speed of adjustment (SOA) toward target. The results establish that during periods of significant policy-related uncertainty shocks, firms optimally deviate from target cash holdings.

Secondly, we find that the costs of adjustment are higher for firms that operate below target cash than for firms that operate above target cash. In addition, during periods of significant policy-related uncertainty shocks, firms that operate below target cash accelerate SOA, while firms that operate above target cash decelerate SOA. The results demonstrate that the marginal benefit of cash holdings increases with an increase in policy-related uncertainty. As policy-related uncertainty heightens, firms that operate above target cash decelerate SOA as the benefit of doing so is greater than the cost. In contrast, firms that operate below target cash accelerate SOA since the cost of reducing deviation from target cash is lower than the benefit of doing so.

Thirdly, we study the effects of policy-related uncertainty on the speed of adjustment of cash across different sorts of firms. To this end, we find that as policy-related uncertainty heightens, non-dividend payers tend to decelerate SOA,and that financially constrained firms tend to decelerate SOA at a faster rate than their financially unconstrained counterparts. Firms that face high cash flow volatility also tend to decelerate SOA at a faster rate than firms with stable cash flow. We also find that firms that are underlevered tend to decelerate SOA at a faster rate than firms that are highly-levered. In addition, firms that are highly dependent on external financing decelerate SOA at a faster rate than firms that are less dependent on external financing. Overall, the results suggest that the effects of policy-related uncertainty on SOA of cash are heterogeneous in the cross-section.

Taken together, these results suggest that policy-related uncertainty induces adjustment costs and financing frictions, which play an important role in how often firms rebalance cash toward target. Overall, the results demonstrate that as policy-related uncertainty increases, the speed of adjustment (SOA) of cash toward target decreases.

3.6 Figures and Table

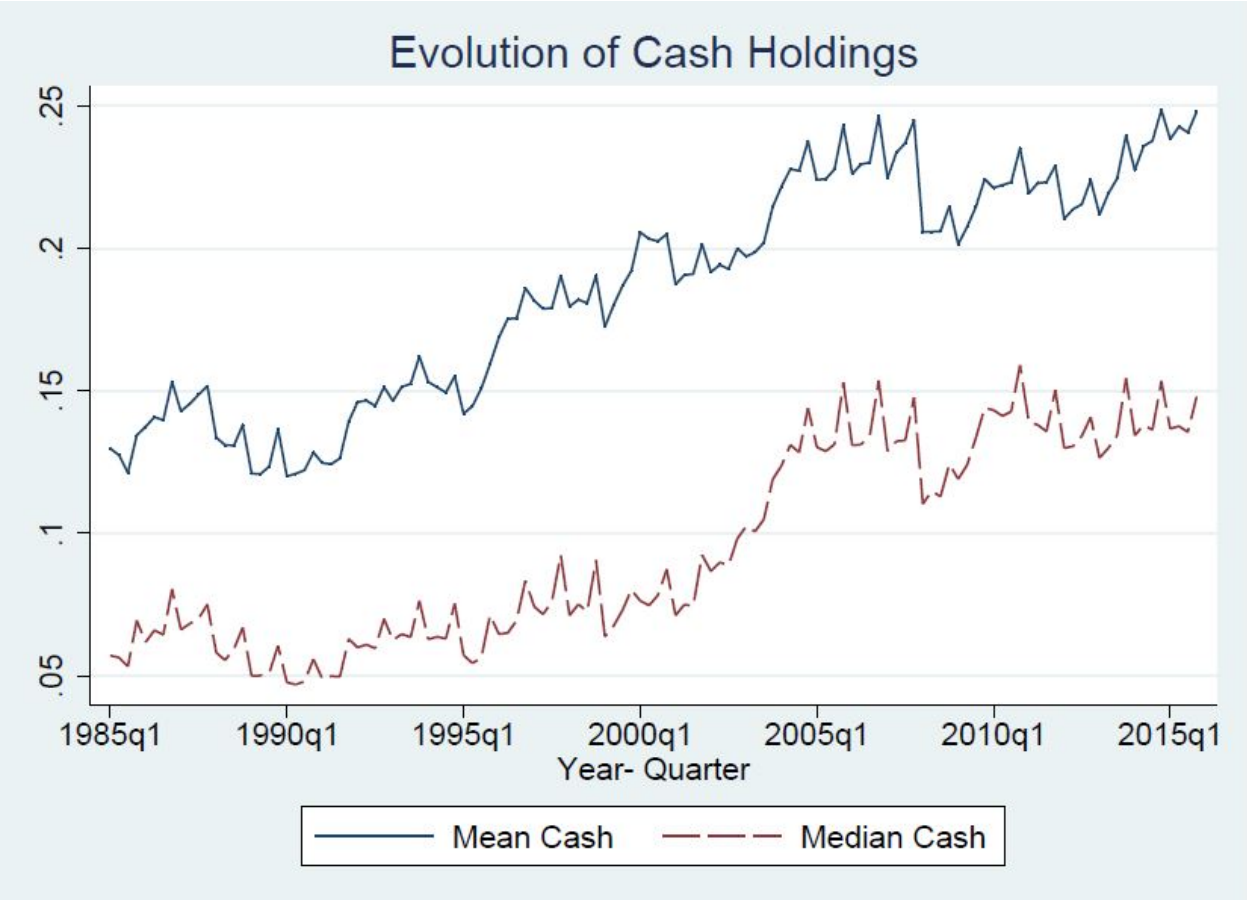
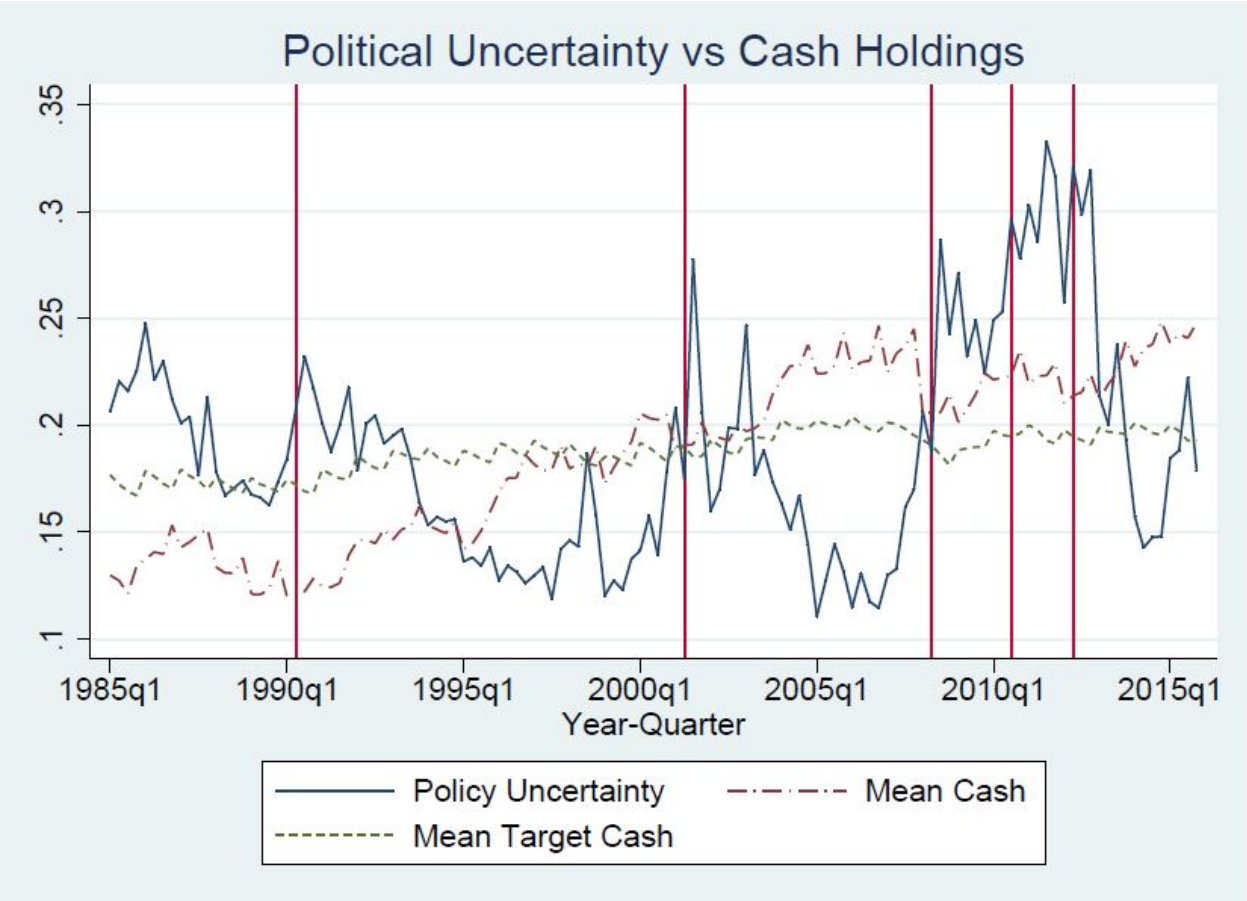


Fig.3.1 *Evolution of Cash holdings*

Fig. 3.2 *Evolution of Actual Cash and Target Cash*



Policy Uncertainty vs Cash Holdings

Fig. 3.3: The vertical lines represent periods of heightened uncertainty: the gulf war, the tech bubble, the 2008 financial crisis, the 2010 midterms election and the 2012 general election. Note that for aesthetic purposes the policy uncertainty index (solid line) has been scaled so as to have a statistically similar mean and variance to actual cash (dash-dot line).

TABLE 1: Summary Statistics

This table presents summary statisics for the sample, which consists of non-financial and non-utility U.S. incorporated firms in Compustat's quarterly files for the period 1985Q1-2016Q4. Cash is estimated as cash and cash equivalents (CHEQ) scaled by total assets. Size is the natural logarithm of total assets. We require that firm has positive total assets to be included in the sample. Tobin Q is estimated as the book value of total assets plus the market value of equity less book value of equity scaled by total assets. Dividend is a dummy equal to "1" if a firm paid or issued dividend during period t. Net working capital is net working capital minus cash and marketable securities scaled by total assets. Acquisition activity is a dummy equal to "1" if the firm has undertaken or engaged in acquisition activity in period t. Leverage is estimated as short-term debt plus long-term debt scaled by total assets. Capex is estimated as capital expenditure scaled by total assets. Policy uncertainty is the Baker, Bloom and Davis (2016) Overall index

	Mean	Median	Std. Dev	25^{th}	75^{th}
Summary Statistics:					
Cash	0.1823	0.0866	0.223	0.0221	0.2652
Size	4.569	4.558	2.153	3.0313	6.122
Tobin Q	1.996	1.468	1.498	1.082	2.303
Capex	0.0401	0.0204	0.0668	0.0082	0.0465
Leverage	0.315	0.1981	6.932	0.0297	0.3897
Policy Uncertainty	105.675	96.789	31.614	79.813	122.349
Dividend Dummy	0.1086	0.000	0.3111	0.000	0.000
Net working Capital	0.0763	0.0802	39.936	0.0417	0.2269
Acquisition Activity	0.1497	0.000	0.3568	0.000	0.000

***TABLE 2**: Panel Regressions Estimating the Determinants of Cash Holdings*

This table reports determinants of target/optimal cash. In models [1,2,3] the dependent variable is cash estimated as cash and cash equivalent scaled by total assets. Models [4,5,6] present estimates for which the dependent variable isthe natural logarithm of cash adjusted by net assets (N.assets). Net assets are estimated as total assets less cash and cash equivalents.

	(1)	(2)	(3)	(4)	(5)	(6)
	Cash	Cash	Cash	Ln(Cash/N.assets)	Ln(Cash/N.assets)	Ln(Cash/N.assets)
Tobin Q	0.0139***	0.0140***	0.0140***	0.122***	0.124***	0.124***
	(76.93)	(21.68)	(21.68)	(67.49)	(24.88)	(24.88)
Leverage	-0.171***	-0.172***	-0.172***	-1.680***	-1.676***	-1.676***
	(-157.86)	(-24.86)	(-24.86)	(-153.80)	(-24.19)	(-24.19)
Size	-0.000843***	0.00185	0.00185	-0.0146***	-0.0356***	-0.0356***
	(-3.09)	(1.30)	(1.30)	(-5.31)	(-2.82)	(-2.82)
Cash flow	0.0248***	0.0232***	0.0232***	0.268***	0.287***	0.287***
	(10.74)	(3.33)	(3.33)	(11.38)	(3.70)	(3.70)
Capex	-0.132***	-0.139***	-0.139***	-0.744***	-0.700***	-0.700***
	(-34.74)	(-10.75)	(-10.75)	(-19.46)	(-7.13)	(-7.13)
Networking Capital	-0.0875***	-0.0907***	-0.0907***	-0.801***	-0.781***	-0.781***
	(-89.20)	(-15.39)	(-15.39)	(-80.80)	(-15.45)	(-15.45)
Dividend dummy	-0.0132***	-0.0134***	-0.0134***	-0.137***	-0.123***	-0.123***
	(-15.07)	(-5.47)	(-5.47)	(-15.52)	(-4.72)	(-4.72)
Acquisition Activity	-0.0158***	-0.0158***	-0.0158***	-0.0904***	-0.0831***	-0.0831***
	(-25.50)	(-14.23)	(-14.23)	(-14.57)	(-7.43)	(-7.43)
1990s Dummy		-0.0216***	-0.0216***		-0.245***	-0.245***
		(-10.50)	(-10.50)		(-11.48)	(-11.48)
2000s Dummy		-0.0237***	-0.0237***		-0.134***	-0.134***
		(-7.35)	(-7.35)		(-4.23)	(-4.23)
2010s Dummy		-0.0225***	-0.0225***		0.0564	0.0564
		(-5.37)	(-5.37)		(1.41)	(1.41)
Constant	0.220***	0.227***	0.227***	-1.987***	-1.772***	-1.772***
	(154.85)	(35.46)	(35.46)	(-138.99)	(-30.69)	(-30.69)
Firm F.E	YES	YES	YES	YES	YES	YES
Industry F.E	NO	NO	YES	NO	NO	YES
Clustered Std. Errors	NO	YES	YES	NO	YES	YES
N	383,333	383,333	383,333	379,332	379,332	379,332
R^2	0.278	0.260	0.260	0.264	0.270	0.270

***TABLE 3**: The Effect(s) of Policy Uncertainty on Cash Holdings*

This table reports determinants of target/optimal cash. Policy uncertainty is estimated as the natural logarithms of the Baker et al. (2016) index. Net assets are estimated as total assets less cash and cash equivalents. All regressions include firm fixed effects. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	Cash	Cash	Ln(Cash/Net asset)	Ln(Cash/Net asset)
Policy Uncertainty	0.00743***	0.00602***	0.190***	0.0780***
	(10.69)	(4.14)	(27.30)	(5.69)
Tobin Q	0.0141***	0.0142***	0.129***	0.127***
	(77.68)	(21.68)	(70.61)	(25.06)
Leverage	-0.171***	-0.172***	-1.679***	-1.678***
	(-157.85)	(-24.85)	(-153.88)	(-24.19)
Size	-0.000871***	0.00216	-0.0153***	-0.0315**
	(-3.19)	(1.51)	(-5.57)	(-2.47)
Cashflow	0.0250***	0.0231***	0.274***	0.286***
	(10.83)	(3.33)	(11.64)	(3.71)
Capex	-0.132***	-0.140***	-0.751***	-0.713***
	(-34.82)	(-10.75)	(-19.65)	(-7.19)
Networking Capital	-0.0871***	-0.0907***	-0.791***	-0.782***
	(-88.77)	(-15.39)	(-79.86)	(-15.45)
Dividend Dummy	-0.0131***	-0.0134***	-0.133***	-0.123***
	(-14.86)	(-5.47)	(-15.03)	(-4.71)
Acquisition Activity	-0.0157***	-0.0158***	-0.0885***	-0.0833***
	(-25.39)	(-14.24)	(-14.28)	(-7.45)
1990s Dummy		-0.0208***		-0.235***
		(-10.35)		(-11.26)
2000s Dummy		-0.0238***		-0.135***
		(-7.35)		(-4.26)
2010s Dummy		-0.0246***		0.0297
		(-5.72)		(0.72)
Constant	0.185***	0.198***	-2.879***	-2.155***
	(52.22)	(19.87)	(-80.78)	(-23.65)
Firm F.E	YES	YES	YES	YES
Industry F.E	NO	YES	NO	YES
Clustered Std. Errors	NO	YES	NO	YES
N	383,333	383,333	379,332	379,332
R^2	0.279	0.258	0.267	0.269

***TABLE 4**: The Dynamics of Cash Holdings: Speed of Adjustment (SOA)*

This Table presents estimates for measuring speed of adjustment of cash. The method is similar to Jiang and Lie (2016), Dittmar and Duchin (2011) and Byuon (2009). Deviation from Target is the difference between target cash and previous period cash holdings. Estimates of target cash in models [1,2,3] are based on determinants of optimal cash from model [1] of Table 2, while in models [4,5,6] target cash holdings is estimated from model [2] of Table 2. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Deviation from Target	0.261***	0.263***	0.263***			
	(233.85)	(72.56)	(72.29)			
Deviation from Target(2)				0.262***	0.262***	0.263***
				(234.48)	(72.35)	(72.29)
Constant	0.000769***	0.000769***	0.0109***	0.000840***	0.000840***	0.00661***
	(6.28)	(426.23)	(7.87)	(6.86)	(1021.01)	(4.78)
Firm F.E	YES	YES	YES	YES	YES	YES
Year F.E	NO	NO	YES	NO	NO	YES
Clustered Std. Errors	NO	YES	YES	NO	YES	YES
N	341,141	341,141	341,141	341,141	341,141	341,141
R^2	0.143	0.143	0.144	0.144	0.144	0.145

TABLE 5: Uncertainty and Dynamics of Cash Holdings

:

This Table presents estimates for measuring speed of adjustment of cash. The method is similar to Jiang and Lie (2016), Dittmar and Duchin (2011) and Byuon (2009). Deviation from Target is the difference between target cash and previous period cash holdings. Estimates of target cash in models [1,2] are based on determinants of optimal cash from model [1] of Table 2, while in models[3,4] target cash holdings is estimated from model [2] of Table 2. Uncertainty is the natural logarithm of the Baker et al. (2016) Overall index. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Deviation from Target	0.326***	0.326***		
	(30.34)	(18.33)		
Deviation from Target(2)			0.335***	0.335***
			(34.56)	(20.55)
UncertaintyxDeviation	-0.0140***	-0.0140***	-0.0158***	-0.0158***
	(-6.03)	(-3.68)	(-7.55)	(-4.59)
Constant	0.000757***	0.000757***	0.000847***	0.000847***
	(6.18)	(209.89)	(6.92)	(507.21)
Firm F.E	YES	YES	YES	YES
Clustered Std. Errors	NO	YES	NO	YES
N	341,141	341,141	341,141	341,141
R^2	0.143	0.143	0.144	0.144

NOTE:t-statistics in parentheses: * p:0.10, ** p:0.05, *** p:0.01

***TABLE 6**: Accounting for Heterogeneity in Cash Holdings*

:

This Table presents estimates for measuring speed of adjustment of cash. The method is similar to Jiang and Lie (2016), Dittmar and Duchin (2011) and Byuon (2009). Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is estimated from determinants of cash in Table 2. "High" is a dummy variable equal to "1" if cash holdings is above sample mean and zero otherwise. Uncertainty measure is based on Baker et al (2016) Overall index. It is estimated as the natural logarithm of the overall index. Standard errors are clustered at firm- level. Within R^2 is reported.

	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Deviation from Target	0.293***	0.293***	0.186***	0.309***	0.309***	0.212***
	(26.93)	(15.78)	(6.91)	(28.19)	(16.53)	(5.40)
UncertaintyxDeviation	-0.0143***	-0.0143***	0.00901	-0.0172***	-0.0172***	0.00394
	(-6.18)	(-3.70)	(1.59)	(-7.37)	(-4.44)	(0.47)
DeviationxHighCash	0.0478***	0.0478***	0.190***	0.0463***	0.0463***	0.177***
	(17.24)	(6.36)	(5.33)	(16.67)	(6.16)	(3.55)
UncertaintyxHighCashxDeviation			-0.0310***			-0.0284***
			(-4.15)			(-2.69)
Constant	0.00401***	0.00401***	0.00397***	0.0142***	0.0142***	0.0137***
	(17.83)	(7.85)	(7.79)	(10.80)	(9.62)	(9.20)
Firm F.E	YES	YES	YES	YES	YES	YES
Year F.E	NO	NO	NO	YES	YES	YES
Clustered Std. Errors	NO	YES	YES	NO	YES	YES
N	341,141	341,141	341,141	341,141	341,141	341,141
R^2	0.144	0.144	0.144	0.145	0.145	0.145

TABLE 7: Uncertainty and Deviation from Optimal Cash Holdings

This Table presents estimates for measuring speed of adjustment of cash. The method is similar to Jiang and Lie (2016), Dittmar and Duchin (2011) and Byuon (2009). Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is estimated from determinants of cash in Table 2. Firms are sorted on whether their actual cash is above (Deviation>0) or below (Deviation<0) target cash. Uncertainty measure is based on Baker et al (2016) overall index. It is estimated as the natural logarithm of the overall index. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
	Deviation>0	**Deviation**>0	**Deviation**<0	**Deviation**<0
Deviation from Target	0.527***	0.527***	0.456***	0.456***
	(33.88)	(19.90)	(43.17)	(23.34)
UncertaintyxDeviation	-0.0160***	-0.0160***	0.0309***	0.0309***
	(-4.78)	(-2.90)	(13.51)	(7.54)
Constant	0.110***	0.110***	-0.0706***	-0.0706***
	(224.29)	(85.90)	(-453.88)	(-137.49)
Firm F.E	YES	YES	YES	YES
Clustered Std. Errors	NO	YES	NO	YES
N	115,522	115,522	225,619	225,619
R^2	0.318	0.318	0.497	0.497

NOTE: t-statistics in parentheses: * p:0.10, ** p:0.05, *** p:0.01

TABLE 8: Leverage, Uncertainty and Speed of Adjustment(SOA)

This Table presents estimates for measuring speed of adjustment of cash and takes into account the effects of leverage. Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is estimated from determinants of cash in Table 2. Firms are sorted on whether their leverage level is below or above sample mean (median). Uncertainty measure is based on the Baker et al. (2016) overall index, and it is estimated as the natural logarithm of the Overall index. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
		Panel A		
Leverage(Mean):	LOW	HIGH	LOW	HIGH
Deviation from Target	0.344***	0.334***	0.360***	0.349***
	(28.69)	(13.08)	(18.63)	(6.10)
UncertaintyxDeviation from Target	-0.0154***	0.00112	-0.0184***	-0.00163
	(-5.94)	(0.20)	(-4.45)	(-0.14)
Constant	0.00394***	-0.0149***	0.0158***	-0.00893***
	(28.11)	(-56.90)	(9.80)	(-2.88)
Firm F.E	YES	YES	YES	YES
Year F.E	NO	NO	YES	YES
Clustered Std. Errors	NO	NO	YES	YES
N	273,442	67,699	273,442	67,699
R^2	0.151	0.184	0.153	0.186
		Panel B		
Leverage(Median):	LOW	HIGH	LOW	HIGH
Deviation from Target	0.403***	0.288***	0.417***	0.331***
	(27.47)	(17.84)	(19.13)	(8.65)
UncertaintyxDeviation from Target	-0.0248***	0.00685**	-0.0275***	-0.00184
	(-7.83)	(1.97)	(-5.93)	(-0.23)
Constant	0.0163***	-0.0192***	0.0342***	-0.0134***
	(80.88)	(-109.53)	(13.49)	(-8.77)
Firm F.E	YES	YES	YES	YES
Year F.E	NO	NO	YES	YES
Clustered Std. Errors	NO	NO	YES	YES
N	183,413	157,728	183,413	157,728
R^2	0.163	0.176	0.166	0.178

NOTE: t-statistics in parentheses: * p:0.10, ** p:0.05, *** p:0.01

***TABLE 8- Panel [C1]**: External Finance Dependence and Equity Dependency*

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
	External	**Finance**	**Dependence**	
	LOW	HIGH	LOW	HIGH
Deviation from Target	0.286***	0.352***	0.310***	0.372***
	(18.70)	(22.73)	(12.82)	(15.51)
UncertaintyxDeviation from Target	-0.0105***	-0.0125***	-0.0152***	-0.0165***
	(-3.19)	(-3.74)	(-2.94)	(-3.25)
Constant	0.000646***	0.00172***	0.00726***	0.0180***
	(4.23)	(9.00)	(4.83)	(6.63)
Firm F.E	YES	YES	YES	YES
Year F.E	NO	NO	YES	YES
Clustered Std. Errors	NO	NO	YES	YES
N	170,641	170,500	170,641	170,500
R^2	0.127	0.163	0.130	0.165

***TABLE 8- Panel [C2]**: External Finance Dependence and Equity Dependency*

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
	External	**Equity**	**Dependence**	
	LOW	HIGH	LOW	HIGH
Deviation from Target	0.262***	0.363***	0.292***	0.385***
	(16.09)	(24.56)	(9.15)	(17.47)
UncertaintyxDeviation from Target	-0.00424	-0.0145***	-0.0103	-0.0189***
	(-1.21)	(-4.51)	(-1.53)	(-4.00)
Constant	-0.0108***	0.0120***	-0.00410**	0.0257***
	(-69.10)	(63.10)	(-2.45)	(11.04)
Firm F.E	YES	YES	YES	YES
Year F.E	NO	NO	YES	YES
Clustered Std. Errors	NO	NO	YES	YES
N	156,022	185,119	156,022	185,119
R^2	0.139	0.162	0.141	0.164

TABLE 9: Accounting for the effects of Payout Policy on Speed of Adjustment(SOA)

:

This Table presents estimates for measuring speed of adjustment of cash and take into account the effects of dividend. Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is optimal cash estimated from determinants of cash in Table 2. Firms are sorted on whether they pay dividend in each period t. Uncertainty measure is based on Baker et al. (2016) overall index, and it is estimated as the natural logarithm of the overall index. Standard errors are clustered at firm-level .Within R^2 is reported.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Dividend-Payer	YES	NO	YES	NO
Deviation from Target	0.343***	0.318***	0.343***	0.332***
	(7.65)	(28.76)	(4.02)	(18.11)
UncertaintyxDeviation	0.00490	-0.0127***	0.00526	-0.0155***
	(0.50)	(-5.31)	(0.28)	(-3.97)
Constant	-0.00644***	0.00121***	-0.00222	0.0126***
	(-15.61)	(9.53)	(-0.64)	(8.17)
Firm F.E	YES	YES	YES	YES
Year F.E	NO	NO	YES	YES
Clustered Std. Errors	NO	NO	YES	YES
N	33541	307600	33541	307600
R^2	0.192	0.143	0.194	0.145

NOTE: t-statistics in parentheses: * p:0.10, ** p:0.05, *** p:0.01

TABLE 10: Accounting for the effects of Payout Policy on Speed of Adjustment(SOA)

:

This Table presents estimates for measuring speed of adjustment of cash and takes into account the effects of stock repurchases. Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is optimal cash estimated from determinants of cash in Table 2. Firms are sorted into terciles based on their level of stock repurchases. Uncertainty measure is based on Baker et al (2016) overall index, and it is estimated as the natural logarithm of the overall index. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Share Repurchases:	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
Deviation from Target	0.561***	0.398***	0.241***	0.607***	0.411***	0.257***
	(21.43)	(20.36)	(16.42)	(11.91)	(13.01)	(10.35)
UncertaintyxDeviation	-0.0511***	-0.0144***	0.00536*	-0.0602***	-0.0168**	0.00239
	(-9.00)	(-3.39)	(1.71)	(-5.56)	(-2.51)	(0.45)
Constant	-0.00920***	0.00442***	0.00521***	0.00765***	0.0178***	0.00577*
	(-40.21)	(20.61)	(27.59)	(3.84)	(5.14)	(1.90)
Firm F.E	YES	YES	YES	YES	YES	YES
Year F.E	NO	NO	NO	YES	YES	YES
Clustered Std. Errors	NO	NO	NO	YES	YES	YES
N	105,425	118,227	117,489	105,425	118,227	117,489
R^2	0.183	0.187	0.144	0.186	0.189	0.147

NOTE: t-statistics in parentheses: *p:0.10, ** p:0.05, *** p:0.01

***TABLE 11**: Effects of Cash Volatility and Cash flow Volatility on Speed of Adjustment(SOA)*

:

This Table presents estimates for measuring speed of adjustment of cash. Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is optimal cash estimated from determinants of cash in Table 2. Firms are sorted into terciles based on their level of cash and cash flow volatility. Uncertainty measure is based on the Baker et al. (2016) overall index. And it is estimated as the natural logarithm of the Overall index. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
			PANEL A			
Cash Volatility	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
Deviation from Target	0.216***	0.331***	0.374***	0.297***	0.366***	0.432***
	(19.76)	(19.47)	(18.42)	(15.29)	(15.11)	(15.05)
UncertaintyxDeviation	0.0209***	0.000837	-0.0289***	0.00415	-0.00540	-0.0412***
	(8.94)	(0.23)	(-6.58)	(1.15)	(-1.05)	(-6.72)
Constant	-0.0324***	-0.00398***	0.0280***	-0.0271***	0.00546**	0.0469***
	(-130.17)	(-23.23)	(75.28)	(-24.82)	(2.53)	(9.21)
Firm F.E	YES	YES	YES	YES	YES	YES
Year F.E	NO	NO	NO	YES	YES	YES
Clustered Std Errors	NO	NO	NO	YES	YES	YES
N	106,580	119,610	114,951	106,580	119,610	114,951
R^2	0.162	0.182	0.133	0.165	0.187	0.135
			PANEL B			
Cash Flow Volatility	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
Deviation from Target	0.203***	0.359***	0.341***	0.263***	0.377***	0.376***
	(11.73)	(20.52)	(17.40)	(6.80)	(13.65)	(13.72)
UncertaintyxDeviation	0.00568	-0.0284***	-0.0117***	-0.00681	-0.0321***	-0.0191***
	(1.52)	(-7.53)	(-2.76)	(-0.81)	(-5.54)	(-3.27)
Constant	-0.0119***	-0.00241***	0.0212***	-0.00432***	0.00460**	0.0410***
	(-67.63)	(-13.49)	(64.16)	(-2.86)	(2.23)	(9.87)
Firm F.E	YES	YES	YES	YES	YES	YES
Year F.E	NO	NO	NO	YES	YES	YES
Clustered Std Errors	NO	NO	NO	YES	YES	YES
N	110,875	119,408	110,858	110,875	119,408	110,858
R^2	0.123	0.124	0.158	0.126	0.126	0.160

NOTE: t-statistics in parentheses: * p:0.10, ** p:0.05, *** p:0.01

TABLE 12A: Financial Constraints and Speed of Adjustment

:This Table presents estimates for measuring speed of adjustment of cash. Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is optimal cash estimated from determinants of cash in Table 2. Firms are sorted into terciles based on their level of net income. Uncertainty measure is based on the Baker et al (2016) overall index, and it is estimated as the natural logarithm of the Overall index. Standard errors are clustered at firm-level. Within R^2 is reported.

	(1) $\Delta Cash_{t,t-1}$	(2) $\Delta Cash_{t,t-1}$	(3) $\Delta Cash_{t,t-1}$	(4) $\Delta Cash_{t,t-1}$	(5) $\Delta Cash_{t,t-1}$	(6) $\Delta Cash_{t,t-1}$
Net income:	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
PANEL A:						
Deviation from Target	0.365***	0.343***	0.295***	0.406***	0.392***	0.323***
	(19.33)	(19.07)	(14.28)	(15.45)	(11.91)	(9.96)
UncertaintyxDeviation	-0.0147***	-0.0237***	-0.00492	-0.0234***	-0.0338***	-0.0103
	(-3.62)	(-6.12)	(-1.10)	(-4.25)	(-4.85)	(-1.47)
Constant	0.0162***	-0.0113***	0.00136***	0.0386***	-0.00401**	0.00636***
	(52.73)	(-66.40)	(6.99)	(9.81)	(-2.17)	(3.20)
Firm F.E	YES	YES	YES	YES	YES	YES
Year F.E	NO	NO	NO	YES	YES	YES
Clustered Std Errors	NO	NO	NO	YES	YES	YES
N	108,647	113,625	118,805	108,647	113,625	118,805
R^2	0.167	0.130	0.144	0.169	0.133	0.147

NOTE: t-statistics in parentheses: * p:0.10, ** p:0.05, *** p:0.01

TABLE 12B: Alternative Measures of Financial Constraints

This Table presents estimates for measuring speed of adjustment of cash. Deviation from Target is the difference between target cash and previous period cash holdings. Target cash is optimal cash estimated from determinants of cash in Table 2

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
PANEL B:				
WHITED-WU INDEX:	LOW	HIGH	LOW	HIGH
Deviation from Cash	0.238***	0.373***	0.286***	0.398***
	(16.54)	(25.05)	(9.60)	(17.86)
UncertaintyxDeviation	0.00329	-0.0195***	-0.00660	-0.0246***
	(1.06)	(-6.06)	(-1.04)	(-5.19)
Constant	-0.0112***	0.0103***	-0.00771***	0.0242***
	(-72.79)	(53.27)	(-4.77)	(11.84)
N	142,112	199,029	142,112	199,029
R^2	0.137	0.156	0.140	0.158
FIRM SIZE:	SMALL	LARGE	SMALL	LARGE
Deviation from Target	0.407***	0.230***	0.427***	0.247***
	(23.34)	(18.57)	(16.00)	(10.76)
UncertaintyxDeviation	-0.0228***	0.00246	-0.0267***	-0.000813
	(-6.06)	(0.92)	(-4.69)	(-0.17)
Constant	0.00710***	-0.00396***	0.0251***	-0.000195
	(33.35)	(-30.14)	(11.27)	(-0.13)
N	167,798	173,343	167,798	173,343
R^2	0.168	0.131	0.171	0.133
PAYOUT RATIO:	LOW	HIGH	LOW	HIGH
Deviation from Target	0.335***	0.325***	0.351***	0.340***
	(25.11)	(17.52)	(16.36)	(10.76)
UncertaintyxDeviation	-0.0136***	-0.0103***	-0.0167***	-0.0132*
	(-4.72)	(-2.58)	(-3.68)	(-1.96)
Constant	0.000481***	0.00137***	0.0131***	0.00699***
	(3.17)	(7.03)	(7.67)	(3.23)
N	239,178	101,963	239,178	101,963
R^2	0.150	0.153	0.152	0.156
Firm F.E	YES	YES	YES	YES
Year F.E	NO	NO	YES	YES
Clustered Std. Errors	NO	NO	YES	YES

TABLE 13A: *Uncertainty and Liquidity Risk*

The subsamples comprise firms interest coverage and quick ratio measures. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Liquidity Ratio:	**Interest**	Coverage	**Quick**	Ratio
	LOW	HIGH	LOW	HIGH
Deviation from Target	0.383***	0.357***	0.474***	0.451***
	(11.47)	(16.93)	(9.01)	(20.94)
UncertaintyxDeviation	-0.0140**	-0.0197***	-0.00660	-0.0281***
	(-2.01)	(-4.37)	(-0.62)	(-6.21)
Constant	0.00522**	0.0145***	-0.0454***	0.0480***
	(2.33)	(8.01)	(-31.80)	(18.23)
Firm F.E	YES	YES	YES	YES
Year F.E	YES	YES	YES	YES
Clustered Std. Errors	YES	YES	YES	YES
N	118,675	222,466	161,010	180,131
R^2	0.178	0.147	0.291	0.192

TABLE 13B: *Uncertainty and Liquidity Risk*

The subsamples comprise firms interest coverage and quick ratio measures. Within R^2 is reported.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Liquidity Ratio:	**Current**	Ratio	**WC/TA**	Ratio
	LOW	HIGH	LOW	HIGH
Deviation from Target	0.437***	0.454***	0.485***	0.467***
	(9.49)	(21.15)	(9.88)	(21.86)
UncertaintyxDeviation	-0.0112	-0.0287***	-0.0153	-0.0271***
	(-1.17)	(-6.41)	(-1.52)	(-6.03)
Constant	-0.0344***	0.0409***	-0.0398***	0.0433***
	(-20.98)	(17.48)	(-25.08)	(18.54)
Firm F.E	YES	YES	YES	YES
Year F.E S	YES	YES	YES	YES
Clustered Std. Errors	YES	YES	YES	YES
N	160,868	180,273	162,346	178,795
R^2	0.239	0.192	0.276	0.207

TABLE 14A*:Alternative Measure of political uncertainty*

:There is a concern that the EPU index is highly correlated with macroeconomics conditions. In the Table below, "Ellection Dummy" takes the value of "1" for the two years preceeding the general election. The dummy is our proxy for political uncertainty. The control variables are defined in Table [1] above.

	(1)	(2)	(3)	(4)
	Cash	Cash	Ln(Cash/Net asset)	Ln(Cash/Net asset)
Elections Dummy	0.000747**	0.000747	0.0280***	0.0280***
	(2.01)	(1.38)	(7.47)	(5.50)
Size	-0.000842***	-0.000842	-0.0145***	-0.0145
	(-3.09)	(-0.67)	(-5.30)	(-1.29)
TobinQ	0.0139***	0.0139***	0.122***	0.122***
	(76.94)	(21.48)	(67.57)	(24.47)
Cash flow	0.0247***	0.0247***	0.267***	0.267***
	(10.73)	(3.43)	(11.35)	(3.67)
Dividend Dummy	-0.0132***	-0.0132***	-0.137***	-0.137***
	(-15.06)	(-5.43)	(-15.49)	(-5.17)
Capital Exp.	-0.132***	-0.132***	-0.740***	-0.740***
	(-34.71)	(-10.57)	(-19.33)	(-7.49)
NWC	-0.0875***	-0.0875***	-0.800***	-0.800***
	(-89.17)	(-15.21)	(-80.71)	(-15.96)
Leverage	-0.171***	-0.171***	-1.679***	-1.679***
	(-157.85)	(-25.22)	(-153.80)	(-24.24)
Acquistion	-0.0157***	-0.0157***	-0.0901***	-0.0901***
	(-25.49)	(-14.25)	(-14.53)	(-8.02)
Constant	0.220***	0.220***	-2.001***	-2.001***
	(153.30)	(34.46)	(-138.80)	(-34.74)
Firm F.E	YES	YES	YES	YES
Clustered Std Errors	NO	YES	NO	YES
N	383333	383333	379332	379332
R^2	0.330	0.330	0.317	0.317

TABLE 14B: *Alternative Measure of political uncertainty*

There is a concern that the EPU index is highly correlated with macroeconomics conditions. In the Table below, "Ellection Dummy" takes the value of "1" for the two years preceeding the general election. The dummy is our proxy for political uncertainty. The control variables are defined in Table [1] above.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Deviation from Target	0.326***	0.264***		
	(30.34)	(71.01)		
UncertaintyxDeviation	-0.0140***		-0.0158***	
	(-6.03)		(-7.55)	
ElectionDummyxDeviation		-0.00509***		-0.00489***
		(-2.72)		(-2.62)
Deviation from Target(2)			0.335***	0.264***
			(34.56)	(70.81)
Constant	0.000757***	0.000769***	0.000847***	0.000841***
	(6.18)	(425.75)	(6.92)	(935.91)
Firm F.E	YES	YES	YES	YES
Clustered Std Errors	NO	YES	NO	YES
N	341,141	341,141	341,141	341,141
R^2	0.143	0.143	0.144	0.144

TABLE 15: *Size Effects*

:

There is a concern that the EPU index is highly correlated with macroeconomics conditions. In the Table below, "Ellection Dummy" takes the value of "1" for the two years preceeding the general election. The dummy is our proxy for political uncertainty. The control variables are defined in Table [1] above.

	(1)	(2)	(3)	(4)
	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$	$\Delta Cash_{t,t-1}$
Firm Size	Small	Large	Small	Large
Deviation from Target	0.302***	0.241***	0.304***	0.243***
	(179.05)	(157.85)	(60.70)	(44.80)
Constant	0.00708***	-0.00399***	0.0249***	-0.0000995
	(33.35)	(-30.28)	(11.14)	(-0.07)
N	168,379	172,762	168,379	172,762
R^2	0.168	0.131	0.170	0.133
Firm Size	Small	Large	Small	Large
Deviation from Target	0.409***	0.228***	0.430***	0.245***
	(23.54)	(18.42)	(16.14)	(10.66)
UncertaintyxDeviation	-0.0234***	0.00279	-0.0273***	-0.000445
	(-6.21)	(1.05)	(-4.80)	(-0.09)
Constant	0.00708***	-0.00398***	0.0251***	-0.0000905
	(33.34)	(-30.21)	(11.27)	(-0.06)
N	168,379	172,762	168,379	172,762
R^2	0.168	0.131	0.170	0.133
Firm F.E	YES	YES	YES	YES
Year F.E	NO	NO	YES	YES
Clustered Std. Errors	NO	NO	YES	YES

3.7 BIBILIOGRAPHY

3.7.1 Chapter 1: References

[1] Acharya, V.V., H.S. Shin, and T. Yorulmazer (2001). Crisis Resolution and Bank Liquidity. Review of Financail Studies, 24, 2166-2205.

[2] Acharya, V.V., and K.V. Subramanian (2009). Bankruptcy Codes and Innovation. Review of Financial Studies, 22, 4949-4988.

[3] Almeida, H., Campello, M. (2007). Financial Constraints, Asset Tangibility and Corporate Investment. Review of Financial Studies, 20,1429-1460.

[4] Angrist, J.D. and A. Krueger (1999). Empirical Strategies in Labor Economics, in Orley Ashenfelter and David Card, eds.: Handbook of Labor Economics, Vol. III, North-Holland

[5] Asquith, P., and D. Mullins (1986). Equity Issues and Offering Dilution. Journal of Financial Economics, 15, 61-89.

[6] Balakrishan, K., Billings, M.B, Kelly, B. and Ljungvist, A. (2014). Shaping Liquidity: On the causal effects of voluntary disclosure. Journal of Finance, 69, 2237-2278.

[7] Barclay, M.J., E. Morellec, and C.W. Smith Jr. (2006). On the Debt Capacity of Growth Options. Journal of Business 79, 37-59.

[8] Bayless, M., and S. Chaplinksy (1996). Is There a Window of Opportunity for Seasoned Equity Issuance. Journal of Finance, 51, 253-278.

[9] Benmelech and Bergman (2011). Bankruptcy and the Collateral Channel. Journal of Finance, 66(2) 337-378.

[10] Billet, M.T., M.J Flannery and J.A Garfinkel (2006). Are Bank Loans Special? Evidence on the Post-Announcement Performance of Bank Borrowers. Journal of Financial and Quantitative Analysis, 41, 733-751.

[11] Billet, T.B., M.J. Flannery and J.A. Garfinkel (2011). Frequent issuers' Influence on Long–run Post-issuance Returns. Journal of Financial Economics, 99, 349-364.

[12] Bougheas, A., Mizen, P., and Yalcin C., (2006). Access to External Finance: Theory and Evidence on the Impact of Monetary Policy and Firm-Specific Characteristics. Journal of banking and Finance, 30, 199-227.

[13] Byuon, S., (2008). How and When Do Firms Adjust their Capital Structures Toward Targets? The Journal of Finance, 63, 3069-3096.

[14] Cameron, A.C. and Trivedi, P.K (2010). Microeconomics using Stata. Stata press, Texas.

[15] Chu, Y. (2018). Collateral, Ease of Repossession, and Leases: Evidence from Anti-Recharacterization Laws. Working Paper, University of South Carolina.

[16] Coco, G., (2000). On the Use of Collateral. Journal of Economic Surveys, 14, 191-214.

[17] Denis J.D and V. Mihov (2003). The Choice among Bank Debt, Non-Bank Debt Private Debt and Public Debt: Evidence from New Corporate Borrowings. Journal of Financial Economics, 70, 3-28.

[18] Dennis J.D and S.B Mckeon (2012). Debt Financing and Financial Flexibility Evidence from Proactive Leverage Increases. The Review of Financial Studies, 25, 1897-1929.

[19] DeAngelo,H., DeAngelo, L. and Stulz, R.M (2010). Seasoned Equity Offerings, Market Timing and Corporate Lifecycle. Journal of Financial Economics, 95, 275-295.

[20] DeAngelo, H., L. DeAngelo and T.M Whited (2011). Capital Structure Dynamics and Transitory Debt. Journal of financial economics, 99, 235-261.

[21] Diamond, D. W. (1984). Financial Intermediation and Delegated Monitoring. The Review of Economic studies, 51, 393-414.

[22] Diamond, D. W. (1991). Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt. Journal of Political Economy, 99, 689-721.

[23] Djankov, S., McLiesh, C. and Shleifer, A., (2007). Private Credit in 129 Countries. Journal of Financial Economics, 84, 299-329.

[24] Eisfeldt, A.L. and A.A Rampini (2009). Leasing, Ability to Repossess, and Debt capacity. Review of Financial Studies, 22, 1621-1657.

[25] Ersahin, N. (2017). Creditors Rights, Technology Adoption and Productivity: Plant-Level Evidence. Working Paper, University of Illinois , Urbana Champaign.

[26] Fama, E.F., and French, K.R. (2002). Testing Trade-off and Pecking Order Predictions about Dividend and Debt. The Review of Financial Studies, 15, 1-33.

[27] Favara, G., Gao J., and M. Giannetti (2018). Uncertainty, Access to External Finance, and Firm Precautionary Behavior. Working paper.

[28] Feng, M., J.D. Gramlich and S. Gupta (2009). Special Purpose Vehicles: Empirical evidence on Determinants and Earnings Management. The Accounting Review,84,1833-76.

[29] Frank, M.Z. and Goyal, V. K. (2008). Trade-off and Pecking Order Theories of Debt, in: B.E. Eckbo (ed.), Handbook of Corporate Finance: Empirical Corporate Finance, Vol. 2, Handbook of Finance Series, Chapter 12, Elsevier/North-Holland, Amsterdam, 135-202.

[30] Frank M.Z. and V.K. Goyal (2015). The Profits-Leverage Revisited. Review of Finance, 19, 1415-1453.

[31] Frank, M.Z. and Goyal, V.K. (2009). Capital Structure Decisions: Which Factors are Reliably Important? Financial Management,38, 1-37.

[32] Galindo, A.and Micco, A. (2005). Bank Credit to Small and Medium-sized Enterprieses: The Role of Creditor Protection. Research Department Publications, 4399, Inter-American Development bank, Research Department.

[33] Gertler, M and S. Gilchrist (1994). Monetary Policy, Business Cycles and the Behavior of Small Manufacturing Firms. Quarterly Journal of Economics, 109, 309-340.

[34] Giambona, E., A. Mello and T. Riddiough (2012). Collateral and Debt Capacity in the Optimal Capital Structure. Working paper

[35] Gordon, G.B. and N.S. Souleles (2007). Special Purpose Vehicles and Securitization. In "The Risks of Financial Institutions", eds. M. Carey and R.M Stulz, University of Chicago, Press.

[36] Hennessy, C.A. and Whited T.A. (2005). Debt Dynamics. Journal of Finance, 60, 1129-1165.

[37] Hovakimian, A., Opler, T., and Titman, S. (2001). The Debt-Equity Choice. Journal of Financial and Quantitative Analysis, 36, 1-24.

[38] Jung, K.Y, Y.C. Kim and R.M Stulz (1996). Timing, Investment Opportunities, Managerial Discretion and Security Issuance Decision. Journal of Financial Economics, 42, 159-185.

[39] Kettering, K.C. (2008). True Sales of Receivables: A purpose Analysis. American Bankruptcy Institute Law Review, 16, 511-562.

[40] Koenker, R., and G. Bassett (1978). Regression Quantiles. Econometrica, 46, 3350.

[41] Koenker, R., and K. F. Hallock (2001). Quantile Regression. Journal of Economic Perspectives, 15, 143156.

[42] La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R.W Vishny, (1997). Legal Determinants of External Finance. Journal of Finance, 52, 1131-50.

[43] La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R.W Vishny(1998). Law and Finance. Journal of Political Economy, 106, 1113-55.

[44] Lemmon, M.L., Roberts, M.R. and Zender, J.F. (2008). Back to the Beginning: Persistence and the Cross-section of Corporate Capital Structure. Journal of Finance, 63, 1575-1608.

[45] Li, S., T.M Whited, and Y. Wu (2016). Collateral, Taxes and Leverage. Review of Financial Studies, 29, 1453-1500.

[46] Liu, Y, Y. Liu, L. megginson and Z. Wei (20180. The effect of property rights on capital structure: Evidence from a natural experiment. Working paper.

[47] Loughran, T., and J. Ritter (1995). The New Issues Puzzle. Journal of Finance, 50, 23-51.

[48] Mann, W. (2017). Creditor Rights and Innovation: Evidence from Patent Collateral. Journal of Financial Economics, forthcoming.

[49] Manski, C. F. (1975). The maximum Score Estimator of the Stochastic Utility Model of Choice.Journal of Econometrics, 3, 205228.

[50] McKeon, S.B. (2012.) Passive versus Proactive Equity Issuance. Working Paper.

[51] Myers, S.C. and N.S. Majluf (1984). Corporate Financing and Investment Decisions. When Firms Have Information that Investors Do Not Have. Journal of Financial Economics, 22, 187-221.

[52] Myers, S.C. (1984). The capital Structure puzzle. Journal of Finance, 39, 575-552.

[53] Myers, S.C. (1993). Still Searching for Optimal Capital Structure. Journal of Applied Corporate Finance, 6.1, 4-14.

[54] Pistor, K. (2005). Legal Ground Rules in Coordinated and Liberal Market Economies. ECGI Law-Working Paper No. 30/2005

[55] Powell, J. L. (1984). Least Squares Absolute Deviations Estimation for the Censored Regression Model. Journal of Econometrics, 25, 303325.

[56] Rajan, R. and Zingales, L. (1995). What Do We Know about Capital Structure: Some Evidence from International Data. Journal of Finance, 50, 1421-1460.

[57] Ritter, J. (2002). Investment Banking and Securities Issuance. In the Handbook of the Economics of Finance, G. Constantinides, M. Harris and R. Stulz, eds. Amsterdam: North Holland.

[58] Ritter and Huang (2017). Corporate Cash Shortfalls and Financing Decisions. Working Paper

[59] Ritter and Huang (2018). The Puzzle of Frequent and Large Issues of Debt and Equity. Working paper

[60] Vig, V. (2013). Access to Collateral and Corporate Debt structure. Evidence from a Natural Experiment. Journal of Finance, 68, 881-928.

[61] Strebulaev, I.A and B. Zhang (2013). The Mystery of Zero-Leverage Firms ,Journal of Financial Economics 109, 1-23.

[62] Tut, D. (2019). Creditor Rights, Debt Capacity and Securities Issuance: Evidence from Anti-Recharacterization Laws. Debt Capacity and Securities Issuance: Evidence from Anti-Recharacterization Laws (October 24, 2019).

[63] Whited, T., and Wu, G., (2006). Financial Constraints Risk. Review of Financial Studies 19, 531559.

[64] Welch, I. (2011). A Critique of Recent Quantitative and Deep Structure Modeling in Capital Research and Beyond. Available at SSRN: http://ssrn.com/abstract=1563465

3.7.2 Chapter 2: References

[1] Asquith, P., Gertner, R., & Scharfstein, D. (1994). Anatomy of financial distress: An examination of junk-bond issuers. The Quarterly Journal of Economics, 109(3), 625-658.

[2] Barclay, M. J., & Smith, C. W. (1995). The maturity structure of corporate debt. The Journal of Finance, 50(2), 609-631.

[3] Bebchuk, L., Cohen, A., & Ferrell, A. (2008). What matters in corporate governance? The Review of financial studies, 22(2), 783-827.

[4] Bebchuk, L. A., & Cohen, A. (2003). Firms decisions where to incorporate. The Journal of Law and Economics, 46(2), 383-425.

[5] Bebchuk, L. A., & Cohen, A. (2005). The costs of entrenched boards. Journal of Financial Economics, 78(2), 409-433.

[6] Blackwell, D. W., & Kidwell, D. S. (1988). An investigation of cost differences between public sales and private placements of debt. Journal of Financial Economics, 22(2), 253-278.

[7] Bolton, P., & Scharfstein, D. S. (1996). Optimal debt structure and the number of creditors. Journal of Political Economy, 104(1), 1-25.

[8] Boot, A. W., Greenbaum, S. I., & Thakor, A. V. (1993). Reputation and discretion in financial contracting. The American Economic Review, 1165-1183.

[9] Bradley, M. ,& Chen, D. (2003). Corporate Governance and the Cost of Debt: evidence from directors limited liability and idemnification provisions. Journal of Corporate Finance, 17(1), 83-107.

[10] Brennan, M. J., & Hughes, P. J. (1991). Stock prices and the supply of information. The Journal of Finance, 46(5), 1665-1691.

[11] Bris, A., & Welch, I. (2005). The optimal concentration of creditors. The Journal of Finance, 60(5), 2193-2212.

[12] Cantillo, M., & Wright, J. (2000). How do firms choose their lenders? An empirical investigation. The Review of Financial Studies, 13(1), 155-189.

[13] Chemmanur, T. J., & Fulghieri, P. (1994). Investment bank reputation, information production, and financial intermediation. The Journal of Finance, 49(1), 57-79.

[14] Colla, P., Ippolito, F., & Li, K. (2013). Debt specialization. The Journal of Finance, 68(5), 2117-2141

[15] Cremers, M.J. and V. Nair (2005) Governance mechanism and equity prices. Journal of Finance, 60(6),

[16] Cremers, M.J., L. Litov and S. Sepe (2017) Staggered boards and Long-term firm Value, revisited. Journal of Financial Economics, 126,

[17] Cremers, M.J., S. Masconde and S.M Sepe (2016) Commitment and Entrenchment in Corporate Governance. Northern Law Review, 110,

[18] Crouzet, N. (2015). Aggregate implications of corporate debt choices. Working Paper, Kellog School of Management, Northwestern University

[19] Daines, R. (2001). Does Delaware law improve firm value?. Journal of Financial Economics, 62(3), 525-558.

[20] Denis, D. J.,& Mihov, V. T. (2003). The choice among bank debt, non-bank private debt, and public debt: evidence from new corporate borrowings. Journal of financial Economics, 70(1), 3-28.

[21] Detragiache, E. (1994). Public versus private borrowing: a theory with implications for bankruptcy reform. Journal of Financial Intermediation, 3(4), 327-354.

[22] Diamond, D. W. (1984). Financial intermediation and delegated monitoring. The review of economic studies, 51(3), 393-414.

[23] Diamond, D. W. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. Journal of political Economy, 99(4), 689-721.

[24] Dittmar, A.,& Mahrt-Smith, J. (2007). Corporate Governance and the Value of Cash holdings. Journal of financial Economics, 83(3), 599-634.

[25] Faleye, O. (2007). Classified boards, firm value, and managerial entrenchment. Journal of Financial Economics, 83(2), 501-529.

[26] Fama, E. F. (1985). What's different about banks?. Journal of monetary economics, 15(1), 29-39.

[27] Fazzari, S. M., & Petersen, B. C. (1993). Working capital and fixed investment: new evidence on financing constraints. The RAND Journal of Economics, 328-342.

[28] Gertner, R., & Scharfstein, D. (1991). A theory of workouts and the effects of reorganization law. The Journal of Finance, 46(4), 1189-1222.

[29] Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. The quarterly Journal of economics, 118(1), 107-156.

[30] Grossman, S. J.,& Hart, O. D. (1986). The costs and benefits of ownership: A theory of vertical and lateral integration. Journal of political economy, 94(4), 691-719.

[31] Hackbarth, D., & Mauer, D. C. (2012). Optimal priority structure, capital structure, and investment. The Review of Financial Studies, 25(3), 747-796.

[32] Harford J., Mansi S.A.; William F. Maxwell, (2008). Corporate governance and firm cash holdings in the US. Journal of Financial Economics, (3).

[33] Harris, M., & Raviv, A. (1991). The theory of capital structure. the Journal of Finance, 46(1), 297-355.

[34] Hart, O., & Moore, J. (1990). Property Rights and the Nature of the Firm. Journal of political economy, 98(6), 1119-1158.

[35] Hart, O., & Moore, J. (2007). Incomplete contracts and ownership: Some new thoughts. The American economic review, 97(2), 182-186.

[36] Haugen, R. A., & Senbet, L. W. (1978). The insignificance of bankruptcy costs to the theory of optimal capital structure. The Journal of Finance, 33(2), 383-393.

[37] Holmstrm, B. (1999). Managerial incentive problems: A dynamic perspective. The review of Economic studies, 66(1), 169-182.

[38] Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. The American economic review, 76(2), 323-329.

[39] Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of financial economics, 3(4), 305-360.

[40] Johnson, S. A. (1997). An empirical analysis of the determinants of corporate debt ownership structure. Journal of Financial and Quantitative Analysis, 32(1), 47-69.

[41] Johnson, W.C, J.M Karpoff amd S. Yi (2018). The lifecycle of Takeover Defenses. Working paper

[42] King, D., Khang, K., & Nguyen, H. (2011). The determinants of corporate debt mix. Unpublished working paper. University of North Carolina, Charlotte.

[43] Lee, J. (2016). Essays in empirical corporate finance: Debt structure, cash holdings, and CEO compensation (Doctoral dissertation, The University of Iowa).

[44] Lemmon, M. L., Roberts, M. R., & Zender, J. F. (2008). Back to the beginning: persistence and the cross-section of corporate capital structure. The Journal of Finance, 63(4), 1575-1608.

[45] Lou, Y. and C. otto (2018).Debt heterogeneity and covenants. Forthcoming Management Science

[46] Myers, S. C. (1977). Determinants of corporate borrowing. Journal of financial economics, 5(2), 147-175.

[47] Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. Journal of financial economics, 13(2), 187-221.

[48] Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. The American economic review, 48(3), 261-297.

[49] Ozkan, A. (1996). Corporate bankruptcies, liquidation costs and the role of banks. The Manchester School, 64(S1), 104-118.

[50] Park, C. (2000). Monitoring and structure of debt contracts. The Journal of Finance, 55(5), 2157-2195.

[51] Rajan, R. G. (1992). Insiders and outsiders: The choice between informed and arm's length debt. The Journal of Finance, 47(4), 1367-1400.

[52] Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. The journal of Finance, 50(5), 1421-1460.

[53] Rajan, R., & Zingales, L. (2003). The emergence of strong property rights: speculation from history (No. w9478). National Bureau of Economic Research.

[54] Rauh, J. D., & Sufi, A. (2010). Capital structure and debt structure. The Review of Financial Studies, 23(12), 4242-4280.

[55] Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. The Journal of finance, 52(2), 737-783.

[56] Sufi, A. (2007). Information asymmetry and financing arrangement: Evidence from syndicated loans. The Review of Financial Studies, 22(3), 1057-1088.

[57] Sufi, A. (2009a). Bank lines of credit in corporate finance: An empirical analysis. The Review of Financial Studies, 22(3), 1057-1088.

[58] Sufi, A. (2009b). The real effects of debt certification: Evidence from the introduction of bank loan ratings. The Review of Financial Studies, 22(4), 1659-1691.

[59] Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. The Journal of finance, 43(1), 1-19.

[60] Tut, D.,(2019). Policy Uncertainty and Cash Dynamics. Available at SSRN 3403775.

[61] Vig, V., 2013. Access to Collateral and Corporate Debt Structure: Evidence from a Natural Experiment.The Journal of finance, 68(3), 881-928.

[62] Watson, R. (2013). Financial leverage and corporate governance. The Oxford Handbook of Corporate Governance, 269.

[63] Watson, R., & Ezzamel, M. (2005). Financial structure and corporate governance. Corporate Governance: Accountability, Enterprise and International Comparisons, 45.

[64] Whited, T. M. (1992). Debt, liquidity constraints, and corporate investment: Evidence from panel data. The Journal of Finance, 47(4), 1425-1460.

[65] Xiao, J. (2017). Corporate Debt Structure, Precautionary Savings, and Investment Dynamics. University of Cambridge Working Paper

[66] Zwiebel, J. (1996). Dynamic capital structure under managerial entrenchment. The American Economic Review, 1197-1215.

3.7.3 Chapter 3: References

[1] Acharya, V., Davydenko, S., and Strebulaev, I.,(2012) Cash Holdings and Credit Risk. Review of Financial Studies, 25(12), 3572-3609.

[2] Acharya, V., Almeida, H., and Campello, M (2007) Is Cash negative debt? Hedging Perspective on Corporate Financial Policies. Journal of Financial Intermediation, 26,515-554.

[3] Akey, P. and S. Lewellen (2016). Policy Uncertainty, Political Capital and Firm Risk-Taking- Working paper

[4] Allen F., and Michaely, F., (2003). Payout Policy. Handbook of the Economics,1,337-429.

[5] Almeida, H., and Campello, M. (2010) Financing Frictions and the Substitution between internal and External Funds. Journal of Financial and Quantitative Analysis, 45(3), 589-622.

[6] Almeida, H., M. Campello and M.S., weisbach (2004) The cash flow sensitivity of cash. Journal of Finance, 59, 1777-1804.

[7] Auerbach, A. (1985). Real Determinants of Corporate Leverage. B.M Friedman (ed.) Corporate Capital Structure in the United States, National Bureau of Economic Research, 301-322.

[8] Bates, T. W., Kahle, K. M., and Stulz, R. M. (2009). Why do US firms hold so much more cash than they used to?. The journal of finance, 64(5), 1985-2021.

[9] Baker, S.R., N. Bloom a S.J. Davis (2016) Measuring economic policy uncertainty. Quarterly journal of Economics, 131, 1593-1638

[10] Bhattacharya, U., Hsu, P,H, Tian, X and Xu, Y. (2017) What Affects Innovation More: Policy or Policy Uncertainty?Journal of Financial and Quantitative Analysis, Forthcoming.

[11] Blundell, R., and Bond, S. (1998) Initial Conditions and moment restrictions in dynamic panel models. Journal of Econometrics, 87,115-143.

[12] Bougheas, A., Mizen, P., and Yalcin C., (2006) Access to External Finance: Theory and Evidence on the impact of Monetary Policy and Firm-Specific Characteristics. Journal of banking and Finance, 30, 199-227.

[13] Brown, G., and N. Kapadaia (2007) Firm-specific risk and equity market development. Journal of Financial Economics, 84, 358-388.

[14] Byuon, S.. (2009) How and when do firms adjust their capital structures toward targets? Journal of Finance, 63,3069-3096.

[15] Chang, X. and Dasqupta, S., (2009) Target Behaviour and Financing: How conclusive is the evidence? Journal of Finance, 64,1767-1796.

[16] Davydenko, Sergei A.,(2010) What triggers default? A Study of the default boundary, Working paper, University of Toronto.

[17] DeAngelo, H., L. DeAngelo, and T. Whited (2010) Capital Structure Dynamics and Transitory Debt. Working Paper.

[18] Dittmar, A. and J. Mahrt-Smith (2007) Corporate Governance and the Value of Cash holdings. Journal of Financial Economics, 83, 599-634.

[19] Dittmar A. and R. Duchin. (2011). Dynamics of Cash. Working paper, University of Michigan

[20] Duchin, R., Ozbas, O., and Sensoy, B. A. (2010). Costly external finance, corporate investment, and the subprime mortgage credit crisis. Journal of Financial Economics, 97(3), 418-435.

[21] Duchin, R.A., Gilbert T., Harford J. and Hrdlicka, C. (2017) Precautionary Savings with Risky Assets: When Cash is not cash. Journal of Finance, 72(2), 793-852.

[22] Duong, H.N., J.H Nguyen, M. Nguyen and S.G Rhee (2017) Economic Policy Uncertainty and Corporate Cash Holdings. Working Paper

[23] Elsas, R., and D. Florysiak (2015) Heterogeneity in speed of adjustment toward target leverage, International Review of Finance 11: 181-211.

[24] Fama, E. and L. French (2002) Testing trade-off and pecking order predictions about dividends and debt, Review of Financial Studies 15: 1-33.

[25] Faulkender, M., M.J Flannery, K. Watson and J.M Smith (2012) Cash flows and Leverage adjustments. Journal of Financial Economics, 103,632-646.

[26] Faulkender, M. and R. Wang (2006) Corporate Financial Policy and the Value of Cash. Journal of Finance, ,

[27] Fazzari, S., Hubbard, G., Petersen, B. (1988) Financing Constraints and Corporate Investment. Brookings Papers on Economic Activity, 1, 141-195.

[28] Fazzari, S.M and B.Petersen (1993) Working capital and fixed investment: New Evidence on financing constraints. RAND Journal of Economics, 24, 328-342.

[29] Fisher, E.O, Heinkel, R., and Zechner, J. (1998) Dynamic Capital Structure choice: theory and tests. Journal of Finance, 44, 19-40.

[30] Flannery, M., and Rangan, K.P. (2006) Partial Adjustment toward Capital structure. Journal of Financial Economics, 79, 469-506.

[31] Gilchrist S, J.W Sim and E. Zakrajsek (2014) Uncertainty, Financial Frictions and Irreversible Investment. Working Paper

[32] Gonzalez, R.L., Lopez, J. A. and Saurina, J. (2007) Determinants of Access to External Finance. Evidence from Spanish Firms. Federal Reserve Bank of San Franscisco. Worokign paper Series NO- 2007-022.

[33] Grullon, G. and R. Michaely (2002). Dividends, Share Repurchases and Substitution Hypothesis. Journal of Finance, 57,1649-1684.

[34] Grullon, G. and R. Michaely (2004). The Information Content of Share Repurchase Program . Journal of Finance, 59,651-680.

[35] Gulen and M. Ion (2016) Policy Uncertainty and Corporate Investment. Review of Financial Studies, 29, 524-564.

[36] Gungoradinoglu, A., Colak G., and Oztekin, O. (2017). Political Environment, Financial Intermediation costs and Financing Patterns. Journal of Corporate Finance, 44, 167-192.

[37] Harford, J., Mansi, S.A., and Maxwell, W.F. (2008) Corporate Governance and Firm Cash holdings in the U.S. Journal of Financial Economics, 87(3), 535-555.

[38] Huang,and J.R Ritter (2009) Testing Theories of Capital structure and Estimating the Speed of Adjustment. Journal of Financial and Quantitative Analysis, 44(2), 237-271.

[39] Iliev, P., and I. Welch, (2010) Reconciling Estimates of the Speeds of Adjustment of Leverage Ratios. Working paper.

[40] Jagannathan, M., Stephen, C. and M. Weisbach (2000).Financial Flexibility and The Choice Between Dividends and Stock Repurchases. Journal of Financial Economics,57, 355-384. Reprinted in Recent Developments in Corporate Finance, edited by Jay Ritter, Edward Elgar publishing, 2005.

[41] Jens, C. E (2017) Political Uncertainty and Investment: Causal Evidence from the U.S. gubernorial Elections. Journal of Financial Economics, 124, 563-579.

[42] Julio, B., and Y. Yook (2012). Political Uncertainty and Corporate Investment cycles, Journal of Finance 67, 45-82.

[43] Jiang Z. and E. Lie (2016) Cash Holdings adjustments and managerial entrnchment. Journal of Corporate Finance, 36,190-205

[44] Korajczyk, R.A. and Levy, A. (2003) Capital Structure choice: macroeconomic conditions and financial constraints. Journal of Financial Economics, 68,75-109.

[45] Leary, M., and M. Roberts (2005) Do Firms Rebalance their capital structures. Journal of Finance, 60, 2575-2619.

[46] Lemmon, M. and F. Zender (2004) Debt capacity an tests of capital structure theories. Working Paper. University of Utah and University of Colorado.

[47] Minton, B. and C. Strand (1999). The impact of cash flow volatility on discretionary investment and the costs of debt and equity financing. Journal of Financial Economics, 73, 201-228.

[48] Opler, Tim, Lee Pinkowitz, Rene Stulz, and Rohan Williamson (1999). The determinants and implications of corporate cash holdings. Journal of Financial Economics 52, 3-46.

[49] Oztekin, O. and M.J Flannery (2012) Institutional Determinants of Capital Structure adjustment speeds. Journal of Financial Economics, 103, 88-112.

[50] Pastor, L and Pietro Veronesi (2012). Uncertainty about government policy and stock prices. Journal of Finance, 67, 1219-1264

[51] Pastor, L and Pietro Veronesi (2013) Political uncertainty and risk premia. Journal of Financial Economics. 110(3), 520-545.

[52] Petersen, M. (2009) Estimating standard errors in finance panel data sets: comparing approaches. Review of Financial Studies 22, 435480.

[53] Rajan, R., and Zingales, L., (1998). Financial dependence and growth. American Economic Review 88, 559586.

[54] Shipe, S., (2015). Volatility of Cash holdings and Firm Value. Working paper.

[55] Tut, D. (2018). Managerial Entrenchment and Debt Specialization. Available at SSRN 3386229.

[56] Strebulaev, I. (2007) Do tests of capital structure theory mean what they say? Journal of Finance, 62, 1747-1787.

[57] Venkiteshwaran, V., (2011) Partial adjustment towards optimal cash holding level. Review of Financial Economics 20, 113-121

[58] Whited, T. and Wu, G., (2006). Financial constraints risk. Review of Financial Studies 19, 531559.