Behavioral Consistency in Corporate Finance: CEO Personal and Corporate Leverage*

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Abstract

We show empirically that firms behave consistently with how their CEOs behave personally in the context of leverage choices. Analyzing data on CEOs' leverage in their most recent home purchases, we find a positive, economically significant, robust relation between personal and corporate leverage in both the cross-section and when examining CEO changes. The results are consistent with an endogenous matching of CEOs with firms based on leverage and risk preferences on both sides, as well as with CEOs imprinting their personal preferences on the firms they manage, especially when governance is weaker. Besides extending our understanding of the determinants of corporate leverage, this paper shows that CEOs' behavioral consistency across personal and professional situations can in part predict the corporate financial behavior of the firms they manage.

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"I just don't like to owe money."

William F. Laporte, CEO of American Home Products that carried no debt
until after his 17-year leadership (*Forbes*, September 1, 1968, p. 87)

I Introduction

Since the start of modern capital structure research with the seminal work of Modigliani and Miller (1958), financial economists have devoted significant effort to studying the determinants of corporate leverage. The focus of most empirical work has been on market, industry, and firm characteristics. Yet, firms that are very similar in terms of these fundamentals often choose very different corporate leverage. This has led researchers to recently study personal characteristics, e.g., the age and educational background of the firm's top executive, the Chief Executive Officer, CEO (Malmendier, Tate, and Yan (2010), Malmendier and Nagel (2010), Graham, Harvey, and Puri (2009), Bertrand and Schoar (2003)). Our paper follows a similar approach, but instead of CEO characteristics we focus on past personal decisions made by CEOs that are in the same domain as corporate decisions. Specifically, we attempt to explain corporate capital structures based on what CEOs have revealed about themselves and their debt tolerance through past *personal* leverage choices. The scientific basis for our hypothesis is an extensive set of well-cited studies on "behavioral consistency" theory, i.e., the notion that individuals tend to exhibit consistent behaviors across situations. We find that this is a promising empirical approach in corporate finance because firms are found to behave consistently with how their CEOs behave personally in the context of leverage decisions. Besides enhancing our understanding of the determinants of corporate capital structures, the broader novel contribution of the paper is to show that CEOs' personal behavior can, in part, predict corporate financial behavior of the firms they manage.[1]

To be sure, most prior empirical studies assume, at least implicitly, that a firm's CEO does not

[1]Borghans, Duckworth, Heckman, and Weel (2008) is a very informative overview of the economics of personal characteristics, and they conclude: "There is a lot of room for cooperation and exchange of findings and methods between personality psychology and economics" (p. 84). This paper should be viewed as an attempt to engage in such exchange of methods and findings.

matter for corporate leverage decisions. If it takes a certain type of person to rise to the top of a firm, then CEOs are homogenous and close substitutes for one another. Alternatively, there may be significant differences across CEOs, but they do not affect firms if corporate governance structures constrain CEOs from imprinting their preferences on the firms they manage. In either case, firms in the same industry with similar fundamentals choose similar capital structures despite being managed by different CEOs. In contrast, several researchers have recently taken the position that differences in terms of personal preferences across CEOs may indeed matter for corporate leverage choices. For example, in a recent and extensive review of empirical capital structure papers, Parsons and Titman (2008) state that CEOs' personal characteristics, such as "managerial preferences," may affect capital structures (p. 24), and a similar prediction is provided by Opler and Titman (1994) who state that "[d]ifferences in management tastes ... could also explain differences in leverage ratios within an industry" (p. 1021).

Indeed, financial economists have recently identified several observable CEO characteristics as significant determinants of corporate leverage. Malmendier, Tate, and Yan (2010) find that the experience of growing up during the Great Depression makes CEOs more conservative, while having served in the military leads them to adopt more aggressive corporate debt policies. They also construct measures of CEO overconfidence, and find that overconfident CEOs take on more debt. Malmendier and Nagel (2010) report that past economic shocks have a long-term persistent influence on risk-taking behavior. Identifying yet other characteristics, according to Bertrand and Schoar (2003), CEOs with MBAs are more tolerant of debt, while CEOs from older age cohorts are not. Finally, Graham, Harvey, and Puri (2009) report that CEOs with a financial background are significantly more likely to take on more debt.[2] In contrast to these studies, after analyzing personal data on CEOs, Frank and Goyal (2009) conclude that, "leverage choices are not all that closely connected to readily observable managerial traits" (p. 5), suggesting that we may still be missing identification of crucial CEO characteristics. CEOs still matter in their study, since CEO fixed effects are important in their leverage regressions. Finally, it is worth noting that while most

[2]We focus on reviewing empirical studies, but it is worth pointing out that there are also theoretical work which incorporates heterogeneity in personal CEO characteristics into models of corporate capital structure decisions. For example, Cadenillas, Cvitanić, and Zapatero (2004) model the relation between managerial risk aversion and leverage, while Hackbarth (2008) models the relation with optimism or overconfidence.

of these papers study different CEO characteristics, they do not always agree in cases of overlap.

In contrast with any of these existing studies of CEO characteristics, our approach in this paper is based on behavioral consistency theory.[3] An individual, in our specific case a firm's CEO, is predicted to behave consistently across situations. Although we have not previously noted the term behavioral consistency in research in financial economics, we are aware of several studies in economics, finance, and accounting which support this notion. For example, Barsky, Juster, Kimball, and Shapiro (1997) show a positive relation across individuals between all the risky behaviors they study: holding stocks rather than Treasury bills, risky entrepreneurial activity, and smoking and alcohol consumption. Malmendier and Tate (2005) find that CEOs who exhibit overconfidence in their personal security portfolios also display overconfidence when making corporate investment decisions. Hutton, Jiang, and Kumar (2010) find that Republican CEOs pursue more conservative corporate policies than do Democrats. Hong and Kostovetsky (2010) find that mutual fund managers who make personal campaign donations to Democrats invest less of the portfolios they manage in firms deemed socially irresponsible. Chyz (2010) finds that CEOs who are personally more tax aggressive manage firms with more tax avoidance activities. That is, their personal preferences and choices explain their professional decisions. To us, one of the most natural tests of behavioral consistency theory in finance is to examine the relation between CEO personal and corporate leverage.

The notion of behavioral consistency has the potential of explaining, at least in part, a broad set of corporate finance decisions. In this paper, we take a first step in applying this theory to corporate finance by studying CEOs' personal leverage (as in their choice of mortgage for their primary residences) and the corporate leverage of the firms they manage. We choose the financing of the CEO's primary residence because it involves the domain of debt decisions, the home purchase is an important decision, and mortgage debt tends to be the most important source of debt, even if not an adequate measure of overall personal indebtedness. Notably, behavioral consistency theory only requires us to identify and use a relevant comparable situation and not the overall indebtedness of the CEO. In effect, we posit that the interplay of factors that determine what we might call a CEO's

[3]Seminal references include Allport (1937, 1966), Epstein (1979, 1980), and Funder and Colvin (1991).

"debt tolerance" are captured by his personal leverage decision (the mortgage to purchase price ratio). Based on behavioral consistency theory, we predict that corporate and personal leverage are positively related.[4]

There is a competing prediction regarding a relation between personal and corporate leverage. According to the hedging hypothesis, CEOs with more personal home leverage prefer lower corporate leverage to countervail their high personal financial risk in their overall portfolio. Such an effect assumes that excessive corporate leverage is not costless for the CEO personally. Opposite to the prediction based on behavioral consistency, the hedging hypothesis predicts an inverse relation between personal and corporate leverage. It is not obvious a priori as to which effect – behavioral consistency or hedging – is stronger, and in the end it is an empirical question whether CEOs' personal home leverage decisions successfully predict the corporate leverage of the firms they manage.

We start our empirical analysis in the spirit of Liu and Yermack (2007) and construct a database with detailed information on CEOs' primary homes and mortgages.[5] In the U.S., data on total wealth and debt of individuals are not available. However, data on home mortgages and purchase prices have recently become accessible for researchers. We adopt the mortgage to purchase price ratio, or loan-to-value ratio, as the CEO characteristic in our analysis, referring interchangeably to personal leverage or personal home leverage. Our data are collected from the Nexis Lexis public records database and other public data sources, and cover the CEOs of a representative set of S&P 1,500 firms. We find significant heterogeneity across CEOs in personal home leverage: the range is from 0 to 100 percent and the standard deviation is 35 percent. That is, some CEOs choose significantly higher personal leverage than do others, either because of higher debt tolerance, or because of other economic factors which we will also consider.

We then regress corporate leverage on personal home leverage and find a positive, statistically significant, and robust relation.[6] That is, the CEOs who are the most conservative in terms of

[4] A positive relation may not be supported if behaviors are too situation-specific (e.g., Mischel (1968), Slovic (1972a,b), and Endler and Magnusson (1976)).

[5] Liu and Yermack (2007) find that firm performance deteriorates when CEOs acquire large mansions, but unlike our paper, they do not examine the relation between personal leverage and corporate capital structures.

[6] We measure corporate leverage in year 2004 but personal home leverage is measured at the time of the most recent home purchase, which at the median is five years earlier, eliminating concerns that an omitted contemporaneous variable such as mortgage/interest rates jointly explains both personal and corporate leverage.

their personal leverage manage firms that choose more conservative corporate capital structures. The economic magnitude of the estimated effect is large. Suppose we compare two CEOs, one with the median personal home leverage and one with a one standard deviation lower leverage. The estimated effect translates into 2.5 percentage points (20 percent) lower corporate leverage. Personal home leverage adds a little less explanatory power (incremental adjusted R^2) than firm size and profitability, and more explanatory power than tangibility. We also examine several measures that are not subject to a concern about the specific scaling by purchase price: CEOs with zero personal leverage manage firms with 4.9 percentage points lower leverage, compared to otherwise similar firms. The results are robust to controlling for various measures of wealth, risk aversion, and other personal characteristics recently studied in the literature, as in Bertrand and Schoar (2003), Graham, Harvey, and Puri (2009), and Malmendier, Tate, and Yan (2010). We find that personal home leverage explains more variation in corporate capital structures than any one of a dozen characteristics used in prior work. That is, CEOs' personal leverage seems to measure a key component of firm behavior that is not subsumed by other firm or CEO characteristics.

What are the mechanisms through which the positive relation between CEO personal and corporate leverage arises? One channel is endogenous and optimal matching of CEOs and firms. CEOs with certain personal characteristics may match with firms that have demand for those characteristics. Economic explanations for such optimal matching include more efficient risk allocation such that CEOs who are willing to tolerate more financial risk match most optimally with firms for which higher corporate leverage is optimal. Our evidence supports CEO-firm matching because we find that corporate boards systematically replace a CEO with one with a similar debt tolerance. Such CEO-firm matching can partly explain the persistence of corporate capital structures, as reported by Lemmon, Roberts, and Zender (2008). However, CEO personal leverage has an effect on corporate leverage even after we control for decade-old corporate leverage and other standard determinants of leverage, so we conclude that CEO personal leverage explains corporate leverage beyond a persistence of capital structure effect. An alternative mechanism which can explain a positive relation between personal and corporate leverage is that CEOs imprint their personal preferences on the capital structures of the firms they manage, whether optimal or not. We find

that the relation between personal and corporate leverage is more significant for CEOs with less efficient board governance, and conclude that CEOs may only be able to imprint their personal preferences when governance is weak. Thus, some of our findings are consistent with studies which report that agency problems have an effect on corporate capital structures (e.g., Jung, Kim, and Stulz (1996) and Berger, Ofek, and Yermack (1997)).

The rest of the paper is organized as follows. In section II, we develop our hypotheses regarding the relation between personal leverage and the leverage of the firms they manage. In section III, we describe and summarize our data. In section IV, we study the relation between CEOs' personal and corporate leverage. In section V, we report further empirical evidence, emphasizing the mechanisms through which the positive relation between personal and corporate leverage arises. Section VI concludes.

II Empirical Predictions

In this section, we propose two hypotheses for a relation between personal and corporate leverage.

A Behavioral Consistency

One prediction, which we refer to as "behavioral consistency" is based on a large number of well-cited studies in psychology research (e.g., Allport (1937, 1966), Epstein (1979, 1980), and Funder and Colvin (1991)). The relative influence of persons versus situations on behavior constitutes a long-lasting debate. Those on the person side believe that there is relatively consistent variation across individuals in, e.g., their thoughts and behaviors.

The measurement of behavioral consistency is, in principle, straightforward: if the extent to which an individual exhibits a behavior in one situation is predictable from the extent to which the same individual exhibits the behavior in another situation, then there is support for behavioral consistency. Behavioral consistency has the potential for explaining a positive relation between personal and corporate leverage if an individual, in this case a firm's CEO, exhibits consistent behaviors across situations.

For illustrative reasons, it may be useful to provide a simple and stylized model involving personal

and corporate leverage choices to show the person side of behavioral consistency in terms used by economists. Suppose that a manager has a preferred leverage ratio, $\bar{l}$. When making leverage decisions at both the personal and corporate levels, the manager takes this debt tolerance parameter into consideration, since deviating from it causes him disutility. Let $\pi(l)$ represent firm value as a function of the corporate leverage ratio l. We define:

$$\pi(l) = \pi^* - \gamma(l - l^*)^2, \text{ where } \pi^* \geq \gamma \text{ and } l^* \in [0, 1]. \tag{1}$$

Firm value is maximized for this simple quadratic function when the manager chooses $l = l^*$.

Suppose now that instead of maximizing firm value the manager maximizes his own utility $U(W, C)$. His utility depends on his wealth, W, which is a function of firm value through his incentive pay, but also on the consistency (C) between his choice of corporate leverage, l, and his tolerance for debt, $\bar{l} \in [0, 1]$. Let the manager's utility be:

$$U(l) = \alpha[\pi^* - \gamma(l - l^*)^2] + (1 - \alpha)[1 - \psi(l - \bar{l})^2], \text{ where } \alpha \leq 1. \tag{2}$$

In the simplified case where $\gamma = \psi = 1$, the manager maximizes utility by choosing $l^{**} = \alpha l^* + (1-\alpha)\bar{l}$. For $\alpha < 1$ and $l^* \neq \bar{l}$, the manager will choose a level of corporate leverage different from the level that maximizes firm value, l^*. If he prefers a greater (lower) debt ratio than l^*, then he will increase (decrease) corporate leverage toward his preference. This suggests a positive relationship between $\bar{l}$ and the chosen level of corporate leverage l. This effect of behavioral consistency in leverage choice on firm value is displayed graphically in panel (a) of Figure I.

The manager's leverage decision depends on the values of both α and $\bar{l}$. This suggests two ways that firms may reduce the agency cost of the manager imprinting his own debt preferences on the capital structure of the firm. The first is through selecting a manager whose debt tolerance parameter closely matches the optimal leverage ratio of the firm (choose a manager whose $\bar{l}$ is close to l^*). We examine this possibility by testing whether firms exhibit a persistent preference for CEOs that have similar characteristics in terms of their personal leverage choices. The matching of personal debt choices by CEOs, long before their appointments, with corporate leverage after the

CEO was appointed is also a way to examine this possibility. Another way to reduce agency costs according to this simple example is through the use of incentive pay which increases the manager's α. We examine this possibility by testing how personal leverage affects corporate leverage when corporate governance is relatively weaker. The effects of both optimal managerial selection and incentive pay are illustrated in panels (b) and (c) of Figure I, respectively.

In this paper, we estimate $\bar{l}$ for a sample of CEOs using their loan-to-value ratios in their most recent home purchases. The behavioral consistency hypothesis predicts that this debt tolerance parameter, personal leverage, should be positively related to corporate leverage.

B Hedging

Alternative arguments predict an inverse relation between personal and corporate leverage, which we refer to as the hedging hypothesis. Specifically, we predict that CEOs with more personal home leverage prefer lower corporate leverage to counterbalance the risk sources in their overall personal portfolios. This hypothesis assumes that excessive corporate leverage and financial distress are costly for the CEO personally. There exists evidence to support such a prediction. Gilson (1989) finds increased CEO turnover if firms are in default, bankrupt, or privately restructuring their debt,[7] dismissed CEOs are commonly not employed by another public firm for at least three years while retained CEOs experience compensation reductions (Gilson and Vetsuypens, 1993), and CEOs of financially distressed firms hold fewer seats on other boards following their departures (Gilson, 1990).

[7]See Weisbach (1988) and Warner, Watts, and Wruck (1988) for evidence of past performance and CEO turnover.

III The Personal Leverage of CEOs in the U.S.

A Database Construction

Based on public data sources, we construct a new database with detailed information on the homes and mortgages of CEOs of S&P 1,500 firms in 2004.[8] We choose this year because it is recent enough that there is reasonable coverage by public data sources. A description of the database construction and summary statistics on CEO homes are provided in Appendix A. We believe that the resulting database is the largest currently available database with coverage of personal home leverage for a broad set of CEOs in the U.S.

We compute the leverage which each CEO used in the purchase of his most recent home. Specifically, $HomeLev$ is the sum of the primary and other mortgage liens, at the time of the home purchase, scaled by the purchase price.[9] In the real estate literature, this measure is commonly referred to as the loan-to-value ratio. Mortgages and home equity loans/lines are likely the most important sources of debt for CEOs as the interest rate is generally lower than for uncollateralized loans (e.g., credit card debt), and mortgages also come with interest deductibility and may as a result be used first.

It is important to recognize that while we measure corporate leverage in 2004, personal home leverage is generally measured in another year, thus reducing concerns about both leverage measures being jointly determined (by, e.g., macroeconomic conditions and interest/mortgage rates in the same year). In Figure II, we report a time-line and a frequency distribution describing when the CEOs in our sample purchased their homes. We see that the median year in the figure is 1999. That is, the median CEO in our database had owned his home for five years in 2004, so personal leverage is measured, on average, five years earlier than corporate leverage.

[8] In this paper, we focus on CEOs, and not CFOs, because it is very costly to collect data on all executives. CFOs report to CEOs, not vice versa, so CEOs sign off on important capital structure decisions. Chava and Purnanandam (2009) find that CEOs matter for capital structure choices, while CFOs may matter more for, e.g., debt-maturity decisions, which we do not study. Also, Graham et al. (2009) report that CEOs believe that capital structure is one of the central corporate decisions that they have the most control over. 15.1 percent of the CEOs surveyed indicate that they choose capital structures with no input from others, compared to only 3.1 percent for CFOs.

[9] One problem with the nonexistence of a mortgage record for a CEO is that it results in $HomeLev = 0$, although the reason could be: (i) no mortgage was used; or (ii) missing data. To try to include the former and exclude the latter, we require the purchase price to be available for an observation to remain in the sample.

B Summary Statistics

Table I reports summary statistics for CEOs' personal home leverage. Panel A shows that the unconditional median $HomeLev$ is 47 percent. Conditional on having a mortgage, we find that the median CEO home leverage is 66 percent. CEOs' home leverage is somewhat lower than the U.S. median, which was 75 percent in 2005, as can be seen in the final column of the table. However, the most important conclusion from the table is the very wide range of $HomeLev$: from 0 to 100 percent leverage (i.e., zero down-payment on the home). The variation, as measured by the standard deviation, is also significant at 35 percent.

Panel B contains alternative measures of personal leverage. 66.0 percent of CEOs use a mortgage at the time of the purchase of their primary residence. Some CEOs obtain mortgages after the time of the home purchase (refinancing): 73.8 percent of the CEOs use a mortgage backed by their primary residence at some point in time. For some CEOs, we find forms of home leverage other than mortgages. This debt includes home equity lines/loans or other forms of short-term debt financing. The table shows that 22.0 percent of CEOs never lever, i.e., we find no evidence of any form of personal home leverage. That is, there is significant heterogeneity across CEOs in terms of their choice of personal leverage.

C Determinants of CEOs' Personal Leverage

Why do some CEOs have a higher demand for personal home leverage than others? We recognize several potentially important determinants of personal leverage: individual characteristics that reflect preferences, and economic factors such as home prices in the geographic region of the home, macroeconomic conditions (mortgage rates) at the time of the home purchase, and personal taxes.

Table II reports results from regressing $HomeLev$ on a set of potential determinants of CEOs' personal leverage. In column (1), we include the CEO's age at the time of the home purchase ($PurAge$). We expect an inverse relation because older CEOs are likely to have accumulated more wealth and, as a result, are less capital constrained when they purchase a home. In column (2), we provide an alternative measure of wealth: a dummy variable that is equal to one if the home was purchased after the purchaser became CEO ($PurAfterCeo$). In column (3), we include the log

of the median home price in the geographic region (county) of the CEO's home ($LnMedHmVal$). CEOs who reside in regions where residential real estate is relatively more expensive are expected to use more debt because they may not compensate completely by reducing their demand for housing. In column (4), we include the 30-year fixed mortgage rate at the time when the CEO purchased the home ($MortRate30$). In column (5), we include the 5-year lagged market return prior to the month when the CEO purchased his home ($MktRet_{5yr}$). In column (6), we include all of these potential determinants at the same time, forming our baseline regression for determinants of personal home leverage.[10] Given that the baseline regression with all of our economic determinants of personal leverage has an adjusted r-squared of only 7.85%, there is considerable scope for additional explanatory variables based on the personal perferences of CEOs.

We find support for several of our predictions. First, older CEOs seem to be less capital constrained: ten years reduce personal home leverage by about 3.2 percentage points, though this effect is not statistically significant at conventional levels. Second, we find that CEOs who purchase their homes after taking office use 6.6 percentage points less leverage. We also find that CEOs in geographic regions with relatively higher real estate prices are significantly more levered in their homes. Where to live is an endogenous choice, but living very far from the corporate headquarters is associated with significant diseconomies, so executives are commonly constrained to live in the region of the corporate headquarters. The difference between Los Angeles county in California and Cuyahoga county in Ohio implies 7.5 percentage points higher leverage. Finally, CEOs who purchased their homes when mortgage rates were relatively low use more leverage: a 100 basis points lower 30-year fixed rate implies about 6.1 percentage points more home leverage. In column (7), we add purchase year fixed effects to the model in column (6) to account for any differences across purchase years in legislation and market conditions not picked up by mortgage rates and market returns. We find that these year fixed effects capture the effects of mortgage rates and lagged market returns.

Can differences in personal taxes explain the variation in personal home leverage? This does not seems to be the case for several reasons. First, the tax code in the U.S. allows married (single)

[10] A review of the real estate literature reveals that there is no standard predictive model for loan-to-value ratio, though the determinants in column (6) are often invoked.

taxpayers to deduct interest on home mortgages up to $1 million ($500,000). Out of the mortgages in our database, only 9.6 percent are exactly $1 million. Only 11.7 percent of the CEOs have 100 percent $HomeLev$ if their home purchase price is below $1 million or a $1 million mortgage if it is above the tax deductability threshold. Second, in column (8) of Table II we control for the ratio of a CEO's total compensation which is not tax deferrable ($TaxIncRatio$), i.e., salary and other cash compensation (e.g., bonus) divided by total compensation. CEOs with a larger proportion of their compensation in the form of non-tax deferrable income may be expected to use more debt to reduce their taxes, but the estimated coefficient is close to zero (-0.0053) and not statistically significant. In column (9), we control for the log of the CEO's total cash compensation. However, the estimated coefficient on this variable is negative and statistically significant, which seems to be more supportive of a capital constraint than a tax explanation.[11] We conclude that the vast majority of CEOs seem to consider factors other than personal taxes when deciding on personal leverage.

IV Empirical Evidence

The summary statistics reported so far show that there is significant heterogeneity in personal home leverage across CEOs of large public U.S. firms. In this section, we examine whether personal leverage is related to corporate leverage, i.e., we test the empirical predictions – the behavioral consistency and hedging hypotheses – proposed in Section II.

A Regression Results

Table III reports results from regressing corporate leverage on personal home leverage using ordinary least squares (OLS).[12] See Appendix B for summary statistics and for evidence that the firms we study are representative of all U.S.-based, non-financial, and non-utility firms covered by ExecuComp in 2004. In column (1) of Panel A, we find that the estimated coefficient on CEO personal home

[11] The number of observations is reduced in columns (8) and (9) because we require data on the CEO's compensation at the time of the home purchase. In several cases such data are missing because the CEO purchased the home at a time when the CEO was not a top-executive covered by ExecuComp or before the start date of the ExecuComp database.

[12] We have checked that these results are very similar to those from a Tobit model.

leverage is positive (0.0632) and statistically significant at the 1%-level (t-statistic = 2.80). We report White (1980) heteroskedasticity-consistent standard errors in this and all other model specifications. The result of a positive relation between personal home leverage and corporate leverage supports the behavioral consistency hypothesis, but not the hedging hypothesis.

In column (2), we include lagged firm-level characteristics as control variables: the market-to-book ratio ($Mktbk$) as a measure of growth opportunities, the log of total assets ($Assets$) measuring firm size, profitability ($Profit$), and the tangibility of the firm's assets ($Tang$) as a measure of collateral. We choose this set of controls to follow Frank and Goyal (2007).[13] In column (3), we control for industry leverage by including $IndustLev$, the median total debt to market value of assets ratio in the firm's industry, following Frank and Goyal (2007). In column (4), which we label our "baseline" model for corporate leverage, we include all these controls at the same time. We find that the estimated coefficient on $HomeLev$ is still positive (0.0718) and statistically significant at the 1%-level (t-statistic = 4.01). The firm-level control variables have the expected signs.[14]

An alternative procedure for controlling for industry in research on corporate capital structures is to include industry fixed effects. In column (5), we include industry fixed effects defined at the 2-digit SIC code level. However, we find that the estimated coefficient on personal leverage is still positive (0.0784) and statistically significant at the 1%-level.[15] That is, the support for the behavioral consistency hypothesis remains unchanged.

A non-linear relation may mask support for the hedging hypothesis. It may be that only executives with the highest home leverage choose to countervail their personal leverage through corporate capital structure decisions. That is, we may find an inverse relation between personal and corporate debt, but only for the CEOs who are the most highly levered. We choose an 80 percent cutoff because of the standard in the U.S. mortgage industry related to down payments. We define

[13] Frank and Goyal (2007) explore the relative importance of a very large set of potential determinants of corporate leverage. We include the controls that they conclude are the most reliable determinants of corporate leverage. In untabulated regressions, we have also checked that our results are robust to the inclusion of other controls used in an earlier working paper version of their paper. For example, we included $Sales$ instead of $Assets$, a different collateral measure (inventory plus net property, plant, and equipment scaled by assets) instead of $Tang$, and we included $Zscore$ by Altman (1968).

[14] We have checked that our results are robust to potential outliers by winsorizing the data at the 0.5%-level in each tail of the distributions.

[15] We have also used Fama and French (1997) industry classifications and the results do not change (untabulated).

$HL80$ to be an indicator variable that is one if $HomeLev > 0.80$, and zero otherwise. However, column (6) shows that there is no evidence of CEOs offsetting their personal leverage by changing their firms' leverage in a countervailing way, not even among the CEOs who are the most highly levered.

In column (7), we explore the nature of the predictive power of $HomeLev$ by decomposing the variable into two components: the portion predicted by economic factors ($HomeLevPredict$) and the unexplained portion ($HomeLevRes$). We obtain these predicted and residual components from the model of $HomeLev$ estimated in column (6) of Table II.[16] The estimates make clear that the predictive power of $HomeLev$ comes from the portion unexplained by the economic factors. The residual component of $HomeLev$ is positive and highly significant, while the predicted portion has no predictive power for corporate leverage. As an example, while residing in a geographic region with relatively high real estate prices is found to significantly increase a CEO's personal home leverage (as we found in Table 6), this predictable component is not driving our result; it is the residual component that is significantly related to corporate capital structures.

Panel B of Table III analyzes book leverage rather than market leverage, and we find that the estimated coefficient on $HomeLev$ is 0.062 in the baseline specification (column (4)). It is statistically significant at the 1% level.[17] In all model specifications, the estimated coefficient on $HomeLev$ is found to be positive at the 5% level or better. The results are unchanged by using book leverage as the dependent variable rather than market leverage.

Finally, while our results reported so far use data on CEOs and firms in 2004, Figure III shows that our results are indeed similar if we examine corporate leverage measured in other years. In the figure, we re-estimate the baseline model specification for each year 2000–2008.[18] For market

[16] An alternative to our reduced form approach is a structural model. The advantage of a structural model is that, if $HomeLev$ is capturing risk aversion, then we can estimate managers' risk aversion parameters and interpret those parameters. However, if something other than risk aversion is driving the relationship between personal and corporate leverage, then the model is mispecified.

[17] We impose the constraint that $0 \leq TDA \leq 1$. As an alternative, to address potential outliers we have also checked that our results are robust to winsorizing the data at the 0.5%-level in each tail of the distributions.

[18] It is important to emphasize that this analysis only involves those individuals who actually were CEOs in these years, i.e., when we deviate from 2004, we have to drop observations as we have only complete personal leverage data for individuals who were CEOs in 2004. For example, we do not want to regress corporate leverage of a firm in, e.g., year 2000 on the personal leverage of the CEO in 2004 if this individual was actually not CEO in year 2000 because he or she had not been hired yet.

leverage, the estimated coefficient on $HomeLev$ is statistically significant at least at the 5%-level for each year except 2007. The magnitudes of the significant coefficients vary from 0.0500 to 0.0958. For book leverage, the coefficient for 2000 and 2007 is statistically significant at the 10%-level, and for each of the other years, it is significant at least at the 5%-level.

B Economic Magnitude of the Estimated Effect

The regression results show a positive, statistically significant, and robust relation between CEO personal and corporate leverage, supporting the notion of behavioral consistency. The economic magnitude of the estimated effect is large. For example, a firm with a CEO with 100 percent home leverage has a debt ratio which is 7.2 percentage points higher than a similar firm with a CEO with zero debt, based on column (4) of Table III. We may also compare two CEOs, one with the median home leverage in our sample and another with a one standard deviation higher leverage. The estimated difference in corporate leverage is about 2.5 percentage points ($= 0.072 \times 0.35$). Because the median total debt to market value of assets (TDM) ratio is 12.6 percent in our sample, this implies about 20 percent higher corporate leverage. As a comparison, a one standard deviation change in firm size corresponds to 25 percent higher leverage. The effect of a corresponding market-to-book or profitability change is similar. Thus, the economic magnitude of the effect of personal leverage on corporate leverage is similar to the effect of the most important determinants of corporate leverage.

Panel C of Table III illustrates the explanatory power of $HomeLev$ relative to standard determinants of capital structure. The model in column (1) shows that 30% of the variation in firms' capital structures is explained by industry fixed effects. When $HomeLev$ is added to this model, the explanatory power increases by 0.016 (5.33%) to 0.3160. Columns (3) through (6) show the explanatory power of the Frank and Goyal (2007) core firm-level determinants of capital structure. Only $Mktbk$ explains a substantially larger increment in adjusted R^2 compared to $HomeLev$. $Assets$ and $Profit$ explain only slightly more of the variation in capital structure across firms than $HomeLev$. Personal home leverage explains more of the variation in capital structure than $Tang$ which increases the adjusted R^2 by 0.0100. We conclude that CEO personal leverage

provides economically important explanatory power of corporate leverage, compared to standard determinants.

An alternative approach to illustrate the economic magnitude of the estimated effect is to compute predicted corporate capital structures for each firm in our sample based on the baseline model specification in column (4) in Table III, with and without $HomeLev$ included as an explanatory variable. In Figure IV, we report a histogram of the absolute value of the difference between the predicted values from these models as a measure of corporate capital structure effects directly explained by the CEO's personal leverage. We find that the median deviation is 0.0244, with a range from 0 to 0.0500. That is, because of the effect of CEOs' personal leverage, the median firm's debt ratio deviates about 2.4 percentage points from the firm's debt ratio as predicted by a standard model (without controlling for home leverage). This again shows the importance of our results because the median TDM is 12.6 percent.

C Timing of Personal Leverage Choices

While we measure corporate leverage in the cross-section of firms in 2004, recall that we calculate $HomeLev$ at the time of the CEO's most recent home purchase. That is, personal home leverage is generally measured in another year than 2004. More specifically, personal leverage is measured, on average, five years earlier than corporate leverage. This non-synchronous timing of the measurement of corporate and personal leverage reduces concerns that a joint factor explains both variables. However, in Table IV, we also perform a detailed analysis of the timing of CEOs' personal home leverage choices to address remaining concerns that an omitted variable jointly explains both CEO personal and corporate leverage.

We start by examining the subset of CEOs who purchased their homes and chose personal leverage prior to being hired as CEOs of their firms. In column (1), we report results for when the CEO chose $HomeLev$ prior to managing the firm. The estimated coefficient is 0.0647 and statistically significant at the 1%-level. That is, even if focusing on CEOs' choices of personal leverage as revealed in home purchases prior to them actually being hired as the firm's CEO, we find a significant positive relation. This evidence is supportive of the notion of behavioral consistency

because these CEOs seem to show similar debt tolerance personally, even before they were the firm's CEO, as they do in their current role as their firm's top executive.

In columns (2) and (3) we compare CEOs who purchased their homes and chose personal leverage more recently, defined as within five years of 2004, versus CEOs who chose home leverage more than five years ago. We find that both estimated coefficients are positive: 0.0471 versus 0.0882. The coefficient for more recent leverage choices is significant at the 1%-level, while the coefficient for those who chose leverage more than five years ago is significant at the 10%-level. Unsurprisingly, personal leverage measured more recently seems to be a more precise estimate of a CEO's debt tolerance, which may explain the stronger relation for these observations in the table.

The evidence of a positive relation between CEO personal and corporate leverage also when we only consider personal leverage choices prior to the CEO being hired as the firm's top executive or choices more than five years prior to the measurement of corporate leverage significantly reduces remaining concerns that a contemporaneous joint factor explains both CEO personal and corporate leverage.

D Effects of Persistence in Corporate Leverage

Table V examines whether CEO personal home leverage is capturing a persistent corporate leverage effect. In column (1), we report the baseline model specification from column (4) in Panel A of Table III. In column (2), we analyze the effect of controlling for the firm's own corporate leverage five years ago ($FirmLeverage_{-5}$) and in column (3), we control for the firm's leverage a decade ago ($FirmLeverage_{-10}$). We draw two important conclusions from this analysis. First, we find that the inclusion of lagged leverage significantly increases the amount of the variation in corporate capital structures that can be explained (e.g., adjusted R^2 increases from 0.4160 to 0.4920 by the inclusion of decade-old corporate leverage). This result is not very surprising given the evidence reported by Lemmon, Roberts, and Zender (2008). Second, and most importantly from the perspective of our study, the estimated coefficient on $HomeLev$ is 0.0838 and statistically significant (t-statistic = 3.48) even when we control for the firm's own decade-old capital structure. Columns (4)–(6) analyze book rather than market leverage. The conclusion from the exercise in this table is that

CEO personal leverage explains corporate leverage beyond a persistent capital structure effect.

E Effects of Zero Personal Leverage and Scaling

Next, we also examine CEOs with zero personal leverage. These CEOs are particularly interesting as they seem to deviate the most from what we would expect from the perspective of personal taxes and interest deductibility, possibly because of particularly strong debt intolerance, such as that voiced by Mr. Laporte, ex-CEO of American Home Products, who we cited at the very start of the paper. In column (1) of Table VI, we include an indicator variable that is one if there is no public record of the CEO ever using any mortgage, home equity line/loan, or other form of short-term debt home financing for any home, and zero otherwise. That is, these CEOs have zero personal home leverage ($ZeroPersLev$). We find that the capital structures of firms of CEOs who never lever personally are significantly different than those who are levered at some point. Specifically, firms with zero personal leverage CEOs have 4.9 percentage points less corporate leverage. The economic magnitude of this effect is very large given a median leverage of 12.6 percent among our sample of firms. That is, the conclusion of a positive relation between CEO personal leverage and corporate leverage, and thus the support for behavioral consistency, remains unchanged.[19]

One concern with $HomeLev$, the mortgage to purchase price ratio, as a measure of a CEO's personal leverage is the effect of the scaling (purchase price) because it may be argued that the CEO's wealth is the preferred scaling. A CEO's net worth cannot be measured with any precision using U.S. data. We address this concern as follows. First, we re-estimate our baseline model specification using alternative measures of personal leverage that are not scaled. In column (2), we include an indicator variable, $Mort$, which is one if the CEO uses a mortgage at the time of the purchase of his primary residence, and zero otherwise. This is the dichotomous, non-scaled version of $HomeLev$. We find that the estimated coefficient is positive (0.0464) and significant at the 1%-level. Another measure is $MortRefi$, an indicator variable that is one if the CEO uses a mortgage at the time of purchase or any other time, and zero otherwise. This effect is also

[19] We do not predict a perfect positive correlation (+1) between personal and corporate leverage so that zero-leverage CEOs must necessarily manage zero-leverage firms. Our hypothesis based on the notion of behavioral consistency is that CEOs who never lever personally are found in firms with statistically significantly lower corporate leverage than CEOs with at least some personal home leverage, ceteris paribus.

statistically significant at all levels, and somewhat larger, 5.1 percentage points. That is, CEOs who use mortgage financing manage firms with more debt in their corporate capital structures compared to CEOs who do not use any mortgage financing. Second, if the scaling is driving our results, then $HomeLev$ may simply capture CEO wealth, whereas if it is the numerator driving the result (the total mortgage amount), then $HomeLev$ is more likely capturing CEOs' debt tolerance. In column (4), we decompose $HomeLev$ and find that the natural log of the CEO's total mortgage amount in 2005 dollars ($LnMortAmt$) is significantly positively related to corporate leverage, whereas the coefficient on the natural log of the total purchase price in 2005 dollars ($LnPurPrice$) is not significant. We conclude that the particular scaling used for our measure of personal leverage is not critical for our result.

F Effects of CEO Personal Characteristics

Our measure of personal leverage may be correlated with other CEO personal characteristics which explain the cross-section of corporate capital structures. We consider the following extensive set of characteristics, which have been collected from *Marquis Who's Who* and *NNDB* unless otherwise stated, using procedures and definitions following the existing literature.

Wealth. Wealthier CEOs may be more willing to lever up, both personally and in the firms they manage. We use three measures of CEO wealth. First, the natural log of the market value of the CEO's equity ownership in the firm, lagged one year compared to corporate leverage ($EqOwn$). These data are from ExecuComp. Second, we use a founder-CEO indicator ($Founder$) because the wealthiest CEOs are founders. The data are from Fahlenbrach (2009). Only 4.6% of the firms in our sample are managed by their founders. Finally, we employ CEO age (Age) because older CEOs may have accumulated more wealth.

Risk Aversion. Bertrand and Schoar (2003) note that older generations of CEOs appear to be more conservative, and are expected to choose lower debt levels. This may influence both personal and corporate leverage, driving the positive relation we report. They capture risk aversion by age-based cohorts. Malmendier et al. (2010) explain corporate leverage using two other measures of risk aversion: CEOs that experienced the Great Depression and CEOs with military experience.

Individuals who have lived through severe economic shocks such as the Great Depression are expected to have long-lasting aversion to taking on risk (Malmendier and Nagel, 2010). In contrast, CEOs who have served in the military are likely to be more aggressive because their experiences may increase their propensity to engage in risky behavior. Tenure as CEO may also affect risk aversion (Graham et al., 2009). We include each of these risk aversion measures in our analysis. *Tenure* is the number of years the CEO held the CEO position as of 2004. On average, our CEOs had held their positions for 7.1 years. *DepBaby* is an indicator variable equal to one if the CEO was born during the years 1920 to 1929, and otherwise zero. Very few CEOs, only 0.3% of the sample, were born that long ago. *Cohort* is the decade in which the CEO was born, which on average falls in the 1940s. *Military* is an indicator variable that is equal to one if the CEO has served in the military at some point, and otherwise zero. Only 6.1% of the CEOs have military experience.

Educational Background. CEOs with MBAs are predicted to be more aggressive and use more leverage (Bertrand and Schoar, 2003). This effect could influence both personal and corporate debt choices. Taking an opposite stance, Graham et al. (2009) argue that an MBA signals conservatism because risk-seeking individuals venture forth without waiting for an MBA. We define an indicator variable, MBA, equal to one if the CEO has an MBA, and otherwise zero. Some 37.4% of the CEOs in our sample have MBAs.

Professional Background. A CEO's professional background can also affect both the outlook and comfort level of the CEO in making decisions (Graham et al., 2009). In the context of debt, we consider whether the CEO has served as a CFO in the past, $PriorCFO$, and whether he has a financial background, $FinBack$. If the CEO has served as a CFO in the past and/or has a degree in finance, $FinBack$ takes a value of one, otherwise it is set at zero. Some 12.3% of the CEOs in our sample have served as CFO in the past, and 14.5% of the CEOs have a financial background. Professional background in finance predicts higher leverage, both personal and corporate.

Overconfidence. Malmendier et al. (2010) examine the effect of CEO overconfidence on corporate leverage. Overconfident CEOs are expected to eschew external financing since it will appear too costly to them, leading them to prefer the use of internal cash flow. Their overconfidence may also carry over to their personal leverage. Though this cannot explain the positive relation we observe

between TDM and $HomeLev$, we still control for the confident or cautious attitude of the CEO. In Malmendier et al. (2010), it is noted that CEO overconfidence can be measured through the depiction of the CEO in the business media, and that this is consistent with their other measure based on proprietary options data which we do not have access to. We follow them by reviewing articles on our sample CEOs for the three years prior to 2004 in *The New York Times*, *Business Week*, *The Economist*, and *The Wall Street Journal*. Articles in which the words, "confident," "confidence," "optimistic," and "optimism," were used in association with the CEO were classified to imply a confident CEO. Along with articles negating overconfidence, articles with "conservative," "cautious," "reliable," "practical," "frugal," and "steady," were classified to imply a cautious CEO. We define $Confident$ as an indicator variable with value one if the number of articles implying a confident CEO exceed the number implying a cautious CEO, and zero otherwise. $Cautious$ is one if the number of cautious articles exceed the number of confident articles, and zero otherwise. The percentage of confident CEOs exceeds cautious ones, 6.4% versus 1.0%, which is what one would expect from Malmendier et al. (2010).

In Panel A of Table VII, we report descriptive statistics for these CEO personal characteristics. We also report correlations between $HomeLev$ and these characteristics. We note several statistically significant correlations: wealthier CEOs with more equity ownership, founders, and older CEOs have lower personal home leverage, and interestingly, those characterized as "cautious" in news articles also use significantly less leverage personally. Several of the other correlations have signs as expected, though they are not statistically significant.

In columns (1)–(3) of Panel B, we re-estimate the baseline model specification with these CEO characteristics included alongside $HomeLev$. In column (4), we include all of the CEO personal characteristics simultaneously (except Age because it is highly correlated with $Tenure$). We draw two conclusions from this analysis. First, actions and actual choices by CEOs (in our case, personal leverage choices) in the specific domain of leverage seem to be more predictive of corporate leverage choices than the other CEO characteristics. Second, after controlling for about a dozen different CEO personal characteristics, the estimated coefficient on $HomeLev$ is 0.0600 and still statistically significant at the 5%-level. That is, the effect of personal leverage is not subsumed by other personal

CEO characteristics proposed in the prior literature.[20]

V Further Evidence and Extensions

A CEO Turnover and Changes in Corporate Leverage

We examine CEO turnover and corporate leverage changes. The starting point is CEOs for which we have data on personal home leverage. We identify all CEO turnovers during the previous three years, and find 149 CEO changes. We are able to find primary residences for 108, or 72.5 percent, of the previous CEOs, i.e., a comparable percentage to the one for our original sample (75.2 percent). We are able to calculate home leverage for 89 of these CEOs ($HomeLevPrev$) after dropping eight observations that involve new construction and 11 observations with missing purchase prices.

We refer to CEOs as "current" (i.e., CEOs in 2004) versus "previous" CEOs. For previous CEOs, we calculate corporate leverage as of the last full year of the tenure of the CEO. For example, if the previous CEO left office on June 15, 2002, then we associate the end of the year 2001 corporate leverage with this CEO, as long as he was in office for all of 2001. For current CEOs, we calculate corporate leverage for the first full year that the CEO was in office. Thus, we compute corporate leverage associated with the two different CEOs two years apart in order to ensure that the firm capital structure choices we analyze are in fact attributable to the two different CEOs. We have data on current and previous CEO home leverage for 89 firms, but for five of these observations the previous CEO's tenure was for less then one full calendar year, thus these observations are excluded from the analysis of changes. This leaves us with a sample of 84 CEO changes on which to perform our analysis. $HomeLevPrev$ is the personal home leverage of the previous CEO.[21]

Table VIII shows summary statistics and regression results for the CEO turnover analysis. We define $HomeLevChg$ to be $HomeLev - HomeLevPrev$. Panel A shows that there are 39

[20] In untabulated results, we regressed $HomeLev$ on combinations of various CEO personal characteristics and the Frank and Goyal (2007) determinants of leverage. We found that $HomeLev$ captures several of the CEO personal characteristics.

[21] We checked that our result of a positive relation between personal and corporate leverage holds also for the sample of previous CEOs. The estimated coefficient is 0.0973, using the baseline model specification in column (4) of Table III. The statistical significance is weaker than in the full 2004 sample (t-statistic = 1.73), but this is likely because the sample is only about 15 percent of the 2004 sample size.

observations with $HomeLevChg > 0$, i.e., the new CEO has more personal leverage than the previous CEO, 30 observations with $HomeLevChg < 0$, and 15 observations with no change (often 0 or 80 percent home leverage). We construct indicator variables for a leverage increase ($HomeLevIncr$) and decrease ($HomeLevDecr$). As can be seen in the table, the mean (median) increase in personal home leverage is 0.41 (0.35), while the mean (median) decrease is 0.36 (0.29).

We report two results from the CEO turnover analysis. First, in column (1) of Panel B, we regress the current CEO's personal home leverage on the previous CEO's leverage. We find a positive (0.2319) and statistically significant, at the 5%-level, relation between the home leverage of the current and previous CEOs. That is, if the previous CEO of a firm had relatively low personal leverage, the current CEO also tends to have low personal leverage. Second, in column (2), we regress changes in TDM on $HomeLevChg$, changes in the control variables, the corporate leverage in the last full year of the previous CEO (TDM_0), and year fixed effects. We find changes in CEO personal leverage predicts changes in corporate leverage.[22] The estimated coefficient on $HomeLevChg$ is positive (0.0622) and statistically significant at the 10%-level. The result of this changes analysis is consistent with the cross-sectional regressions, but here the identification comes from CEO turnover within firms. Firms change corporate leverage in a way that is, at least partially, predicted by the difference in personal leverage between the new and previous CEOs. This is consistent with the notion of behavioral consistency partly explaining corporate leverage choices.

In column (3), we decompose the change in home leverage associated with the change in CEO by introducing $HomeLevDecr$ and $HomeLevIncr$ in the regression, which leaves out the cases with no changes in home leverage. We find that the positive relation in (2) arises from decreases in TDM for new CEOs that have lower home leverage than the previous CEO. The coefficient of $HomeLevDecr$ is negative and significant at the 1% level, while the coefficient of $HomeLevIncr$ is insignificant. It would appear that CEOs with lower debt tolerance are more proactive in managing corporate debt, or that firms seeking lower leverage find matches more easily with conservative CEOs.

[22] We checked the robustness by including a measure of changes in expected inflation using data from the Livingston Survey, but the results remain unchanged (untabulated).

B Endogenous Matching of CEOs and Firms

One mechanism through which the positive relation between personal and corporate leverage arises is endogenous and optimal matching of CEOs and firms. Different CEO-firm pairs may differ significantly in their match quality, so that a specific CEO matches well with one firm but not another. Economic explanations for such matching include more efficient risk allocation such that CEOs who are willing to tolerate more financial risk match most optimally with firms for which higher corporate leverage is optimal. In equilibrium, CEOs with specific personal characteristics match with firms that have demand for those characteristics. Differences in match quality across CEOs can explain why firms' boards spend so much effort on ex ante screening prior to appointing a specific new CEO.

We found that a firm's board commonly replaces a CEO with low personal leverage with a new similar CEO. This evidence suggests an endogenous CEO-firm matching model in which firms persistently select CEOs with specific preferences for leverage and financial risk-taking. The specific economic mechanism explaining such matching in the context of leverage choices was illustrated in our simple model of behavioral consistency between corporate and personal leverage in section A. If the board believes that the CEO will imprint his personal leverage preference on the firm, then one way to mitigate the value-destroying effects of this preference is to choose a manager whose debt tolerance is aligned with the optimal capital structure of the firm. In the model this equates to choosing a manager whose $\bar{l} = l^*$. In some situations, the board prefers a change and chooses a new CEO who is more conservative than the previous CEO, and in the following two to three years around this CEO change, we indeed observe a decrease in corporate leverage.

C Effects of Corporate Governance

If CEOs imprint their personal preferences on the capital structures of the firms they manage, corporate governance structures may play an important role. More specifically, it is in firms with relatively weaker governance that we expect CEOs to imprint their preferences. We examine whether variation in governance results in different effects of personal leverage on corporate leverage.

Table IX reports our results.[23] First, we study incentive-based compensation. Recall that in our simple model, we noted that one way to mitigate the problem of the CEO imprinting his personal debt preference on the firm was to increase the weight he places on firm value maximization in his utility function, α. One way of increasing α is through the use of incentive pay. Using data from ExecuComp, we define $IncentPay$ as the CEO's total compensation minus salary and deferred compensation divided by total compensation. In column (1), we interact $HomeLev$ with incentive pay and find that the effect of personal leverage is lower, but not significantly so (t-statistic = 1.55) when the CEO's incentive pay is a larger proportion of total compensation.

Second, we examine a measure of board governance, the size of the board.[24] See Yermack (1996) for evidence on board size and governance. We define $SmallBoard$ to be an indicator variable that is one if the number of directors on the firm's board is less than or equal to the median, and zero otherwise. In column (2), we interact $HomeLev$ with this board governance measure. The interaction effect is -0.0711 and statistically significant at the 5%-level, so more efficient board governance seems to reduce CEOs' ability to imprint their specific preferences on their firms. It should be noted, however, that smaller boards are not uniformly the more efficient form for all types of firms, as shown in Coles, Daniel, and Naveen (2008), though by design we have excluded financial firms which they suggest may benefit from larger boards.

Third, we collect data from RiskMetrics on the G-index by Gompers, Ishii, and Metrick (2003), and construct a measure of good external governance ($GoodGov$), i.e., an indicator variable that is one if the firm has a G-index smaller than or equal to six, and zero otherwise.[25] In column (4), we interact $HomeLev$ with this measure of governance and find that the interaction effect is negative

[23] Control variables in this table follow our baseline specification, but we do not report coefficient estimates and standard errors in the table.

[24] We do not have sufficient cross-sectional variation in our 2004 sample to study board independence (because of the Sarbanes-Oxley Act and the new listing rules by NYSE and Nasdaq).

[25] We use a slightly different cutoff than Gompers et al. (2003). They use a G-index cutoff of five in their paper to define "Democracy" firms. We have very few such observations in our sample. However, 67 firms in our sample have a G-index of six or less. We believe that our cutoff still captures the most well-governed firms, according to the G-index measure, in our sample.

(-0.0253) as predicted, but not statistically significant.[26]

Finally, Table X examines corporate governance and valuation effects. In column (1), we regress Q on $AbsDev$ and a set of control variables.[27] We find that the estimated coefficient on $Absdev$ is negative, but not statistically significant.[28] In column (2) we split $AbsDev$ into quartiles, and define $AbsDevQ4$ to be an indicator variable that is one if the firm is in the quartile with the most extreme deviations, and regress Q on $AbsDevQ4$. The estimated coefficient is negative and statistically significant at the 5%-level. In columns (3) and (4) we interact $AbsDevQ4$ with two previously defined governance measures $SmallBoard$ and $GoodGov$, respectively. In both cases the coefficient on the interaction between $AbsDevQ4$ and the governance measure is positive and statistically significant at the 10% level, providing evidence that good corporate governance can reduce the value destroying effect of CEOs pushing their firms' capital structures toward their preferred debt tolerances. This evidence is consistent with long-standing arguments (Jensen and Meckling, 1976) that CEOs do not always choose capital structures with a value-enhancing level of debt and is comparable with some other reported effects (e.g., Jung, Kim, and Stulz (1996) and Berger, Ofek, and Yermack (1997)).

D Robustness Checks

We have performed a number of robustness checks (untabulated):

Home Characteristics. There is evidence that CEOs' home purchases of large mansions signal poor future performance (Liu and Yermack, 2007). However, controlling for the natural log of the square footage of the home, the number of rooms, or the natural log of the purchase price in 2005 home price dollars does not change our results.

Geography. One concern is that $HomeLev$ measures regional effects because of possible relations

[26] Interestingly, the coefficient on the *GoodGov* dummy variable is estimated at -0.0341 and is significant at the 10%-level. This finding is indicative of one of the problems with using the G-index as a measure of governance: the G-index identifies young growth firms as better-governed firms, but young growth firms are poor candidates for high leverage. If the G-index is not a measure of good governance, but rather a measure of young growth firms, we find that our results are robust to controlling for young growth firms as evidenced by the positive and statistically significant coefficient on $HomeLev$ in column (4).

[27] Recall that $AbsDev$ is the absolute value of the difference between the predicted values from a standard corporate leverage model specification with and without $HomeLev$ included.

[28] See, e.g., Korteweg (2010) for estimates of the market's valuation of corporate leverage deviations.

between geography, personal, and corporate leverage. There is evidence that rural firms have more debt in their capital structures than otherwise similar urban firms, possibly because of differences in information asymmetries (Loughran, 2008). However, for such a result to explain the CEO home leverage effect, it has to be that CEOs of rural firms have more home leverage than CEOs of urban firms, which contradicts our previous results that CEOs in regions with higher median home prices have higher home leverage. We have still re-estimated our baseline model specification including state fixed effects, but our result remains unchanged.

IPO Firms. If the CEOs of recent IPO firms use offering proceeds to purchase a home, a concern is that it may explain the positive relation between personal and corporate leverage. As noted previously, personal home leverage is generally measured several years prior to corporate leverage so this concern is unlikely to be important. However, we have checked, and our results are indeed unchanged by excluding firms that in 2004 have been on Compustat for less than five years.

Placebo Analysis. Using data from 2000–2008, we regress corporate leverage on personal leverage for firms where the CEO in 2004 was *not* the CEO in the year in question, either because the CEO had not been hired yet or because there had been a CEO turnover after 2004. In this case we do not predict a significant effect, and the estimated coefficient on $HomeLev$ is indeed not statistically significant.

VI Conclusion

The scientific basis for our hypothesis in this study has been an extensive set of studies on behavioral consistency theory, i.e., the notion that individuals tend to exhibit consistent behaviors across situations. While behavioral consistency has the potential of explaining, at least in part, a broad set of corporate finance decisions, in this paper we only take a first step by examining the relation between CEO personal and corporate leverage. We find that this is a promising empirical approach in corporate finance because firms behave consistently with how their CEOs behave personally in the context of leverage choices.

We find that CEOs personal debt tolerance (controlling for individual and macro characteristics also determining personal leverage) seems to carry over to the corporate domain so that, for example,

CEOs who do not like debt personally manage firms with significantly less corporate leverage, all else equal. In terms of explaining the variation in observed capital structure, personal leverage is on par with several standard determinants of capital structure such as size and profitability, and explains more of the variation than any one of a dozen personal CEO characteristics. One mechanism behind our results seems to be endogenous and optimal matching of CEOs and firms, whereby firms seeking, e.g., conservative capital structures match with top executives with conservative personal leverage, possibly because of more efficient risk allocation.

The broader contribution of our paper is to show empirically that personal behaviors of CEOs can be a valuable basis to predict corporate financial behavior of the firms they manage. In other fields of economic research, Heckman and Rubinstein (2001) and Heckman, Stixrud, and Urzua (2006) have recently shown the predictive power of personal characteristics for non-financial economic outcomes. It will therefore likely prove a fruitful avenue for future research to examine additional questions related to CEOs' personalities, personal characteristics, and firm outcomes.

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Appendix A

Sample Construction

The starting point is all CEOs of the largest U.S. firms, the S&P 1,500 set of firms, in 2004. We identify the CEOs using the ExecuComp database. There are 1,699 CEOs as the index was revised during the year. We drop all financial and utility firms (SIC codes 4813, 4911, 4931, 6020, 6311, and 6331) as they are subject to capital structure regulations (339 firms), and nine firms headquartered outside the U.S. because of lack of real estate data. Data availability varies across states. The following states do not provide public records of mortgages or other data required for the computation of our personal leverage measure: Alaska, Delaware, Iowa, Idaho, Indiana, Kansas, Louisiana, Maine, Minnesota, Missouri, Mississippi, Montana, Nebraska, New Hampshire, Nevada, Oklahoma, Oregon, Texas, Utah, and Wisconsin. As a result, the sample is reduced to 1,003 CEOs.

We hand-collect data on these CEOs' primary residences and mortgages using several data sources and following Liu and Yermack (2007). We mainly use the Nexis online database of public records, www.nexis.com/research. In this database, we are able to search tax assessment, deed transfer, and mortgage records for each CEO. We supplement these data by searching various county assessor, auditor, and recorder websites. For each CEO, we start by performing a name search using the first name, middle initial, and last name. We restrict this search to individuals with age +/− 1 year of the CEO's age because some of them have common first and last names. Most of the CEOs and their residences were identified in this manner. In a few cases where there are several individuals with exactly the same name and age, we use SEC filings and voter registration records to try to identify the CEO's home. For example, there are eight CEOs with the last name "Smith" in our database, and we are able to identify the primary residence for six of them. For estate planning, tax, or other reasons, a trust is sometimes recorded as owner of the CEO's home. When the trust has a different name than the CEO, he or his spouse are recorded as sellers of the property or as trustees and thus are still in the database. In addition, listed on some records may be the name of the CEO's spouse, commonly with the label "Husband and Wife." Spousal names may in some cases be found in the firm's SEC filings. Additional records are in some cases located through a search based on these trust or spousal names. In cases of intra-family real estate transactions, we search until we find an arms-length transaction.

We focus on a CEO's primary residence, as it constitutes the vast majority of most CEOs' real estate holdings. In many cases, the primary residence is listed as "Owner Occupied." Listed on all records is the mailing address for tax purposes, which is often the CEO's primary residence address. If a CEO owns multiple homes in the area of the corporate headquarters, then we classify the largest property as the primary residence provided we do not find information from other data sources suggesting otherwise. By their specific location, some homes are determined to be recreation homes or the like, such as a golf community condominium. By reviewing all the records for a CEO, we are able to determine the primary residence of 757 CEOs (75.4% of the sample). Once all primary residence and mortgage records are located, we collect data on the purchase price of each CEO's most recent primary home, as well as details regarding mortgages and refinancings. (We recorded executive loans from the company, but found them to be very rare in our sample, probably because Sarbanes-Oxley (SOX) bans such loans to CEOs: from the 514 pre-2002 CEO home purchases, we found only five such loans.) Only 10.6 percent of the CEO homes are new constructions homes. These observations have more complications when it comes to determining the purchase price for the home in addition to the land. For new construction homes, we use as the purchase price, the

cost of the land plus the "construction cost," when available, and otherwise the "improvement value" as stated in assessment records.

Table A1 reports descriptive statistics for the database of CEOs' primary residences. The number of observations (N) varies across variables because property records are sometimes incomplete. We find that the median CEO home is large at 5,154 square feet and was built on 1.1 acres of land in 1989. We coded condominiums as having zero land size and they are therefore not included in the land size statistics. Land sizes close to zero are townhouses. The median CEO home has 10 rooms, whereof four are bedrooms, and in addition, there are five bathrooms. There is significant variation in home size because the standard deviation is 2,852 sq. ft. All of the distributions of house size or estimated market values are somewhat skewed to the right.

The table also reports data on purchase prices. The median CEO purchase price is $1.585 million in 2005 home price dollars. The purchase prices have been adjusted using the Office of Federal Housing Enterprise Oversight's National Home Price Index. Current market values are very difficult to estimate without actual real estate transactions for the properties, in particular for high-priced CEO homes for which the market is illiquid and there are not many reasonable benchmark transactions. In the last column of the table, we compare the CEO homes to those of the median U.S. household based on data from the Bureau of Census 2005 American Community Survey. These data show that the median home in the U.S. has five rooms, whereof three are bedrooms. At the median, these homes are 14 years older (built in 1975) than a CEO's primary residence.

Table A1:

Summary Statistics: CEO Home Characteristics

The table reports summary statistics for characteristics of primary residences of CEOs for a sample of S&P 1,500 firms. Data on CEO home characteristics were collected primarily from the LexisNexis public documents database, which includes national coverage of mortgage records, deed transfers, and tax assessor records. The U.S. median data are tabulated from 2005 data provided by the Federal Housing Finance Board – Periodic Summary Tables and the 2005 American Community Survey Subject Tables. Purchase prices are reported in 2005 home price dollars, and adjusted using the Office of Federal Housing Enterprise Oversight's National Home Price Index.

	MED	**MEAN**	**STD**	**MIN**	**MAX**	**N**	**U.S. MED**
Home size (sq ft)	5,154	5,658	2,852	785	22,371	647	
Land size (acres)	1.1	3.4	9.7	0.1	140.0	604	
Year Built	1989	1975	34	1740	2008	676	1975
Total Rooms	10.0	10.9	3.5	5.0	36.0	396	
Bedrooms	4.0	4.5	1.4	0.0	16.0	520	5.0
Bathrooms	5.0	5.1	2.0	1.0	17.0	622	3.0
Purchase Price ($1000s)	1,585	2,155	1,929	114	14,643	641	

Appendix B

Measures of Personal Leverage

- **Home leverage ($HomeLev$)**: is the sum of the primary and secondary mortgage liens, at the time of the home purchase, divided by the purchase price. If the purchase price is not available and there is no mortgage, then $HomeLev$ is set to zero. If a mortgage is found but if any one of the mortgage amount, purchase price, or the improvement cost (if the home is new construction) is not available, then $HomeLev$ is set to missing.

- **Mortgage ($Mort$)**: an indicator variable that is one if the CEO uses a mortgage at the time of the purchase of his primary residence, and zero otherwise.

- **Mortgage or refinancing ($MortRefi$)**: an indicator variable that is one if the CEO uses a mortgage at the time of purchase or any other time, and zero otherwise.

- **Zero leverage ($ZeroPersLev$)**: an indicator variable that is one if the CEO never used any mortgage, revolving credit home equity lines/loans, or other forms of short-term debt home financing, and zero otherwise.

Measures of Corporate Leverage

- **Total debt / Market value of assets (TDM)**
  TDM is the ratio of total debt (item 34, debt in current liabilities + item 9, long-term debt) to MVA, market value of assets. MVA is obtained as the sum of the market value of equity (item 199, price-close $\times$ item 54, shares outstanding) + item 34, debt in current liabilities + item 9, long-term debt + item 10, preferred-liquidation value, $-$ item 35, deferred taxes and investment tax credit.

- **Total debt / Assets (TDA)**
  TDA is the ratio of total debt (item 34, debt in current liabilities + item 9, long-term debt) to item 6, assets.

- **Long-term debt / Market value of assets (LDM)**
  LDM is the ratio of Compustat item 9, long-term debt to MVA, market value of assets. MVA is obtained as the sum of the market value of equity (item 199, price-close $\times$ item 54, shares outstanding) + item 34, debt in current liabilities + item 9, long-term debt + item 10, preferred-liquidation value, $-$ item 35, deferred taxes and investment tax credit.

- **Long-term debt / Assets (LDA)**
  LDA is the ratio of Compustat item 9, long-term debt to item 6, assets.

Table B1:

Summary Statistics: Corporate Leverage

The table shows summary statistics for measures of corporate leverage for a sample of S&P 1,500 firms. The corporate leverage variables are total debt to market value of assets (TDM), total debt to book value of assets (TDA), long-term debt to market value of assets (LDM), and long-term debt to book value of assets (LDA). These data are from S&P's Compustat database. All debt measures are computed as of the end of the calendar year 2004. ExecuComp MEAN values are calculated from 1,351 U.S.-based, non-financial, and non-utility firms covered by ExecuComp in 2004.

			Percentile				ExecuComp
	MEAN	**STD**	**10th**	**50th**	**90th**	**N**	**MEAN**
TDM	0.179	0.198	0.000	0.126	0.425	605	0.178
TDA	0.221	0.420	0.000	0.185	0.415	605	0.215
LDM	0.150	0.169	0.000	0.104	0.373	605	0.152
LDA	0.180	0.194	0.000	0.151	0.383	605	0.183

Control Variables

- **Market-to-book ratio ($Mktbk$)**
  $Mktbk$ is the ratio of market value of assets (MVA) to Compustat item 6, assets. MVA is obtained as the sum of the market value of equity (item 199, price-close × item 54, shares outstanding) + item 34, debt in current liabilities + item 9, long-term debt + item 10, preferred-liquidation value, − item 35, deferred taxes and investment tax credit.

- **Log of Assets ($Assets$)**
  $Assets$ is the log of Compustat item 6, assets.

- **Profitability ($Profit$)**
  $Profit$ is the ratio of Compustat item 13, operating income before depreciation, to item 6, assets.

- **Tangibility ($Tang$)**
  $Tang$ is the ratio of Compustat item 8, net property, plant and equipment, to item 6, assets.

- **Median industry leverage ($IndustLev$)**
  $IndustLev$ is the median of total debt to market (book) value of assets (TDM) ((TDA)) by four-digit SIC code. The use of either TDM or TDA corresponds with the dependent variable in the regression analysis.

Table B2:

Summary Statistics: Control Variables

The table shows summary statistics for the control variables for a sample of S&P 1,500 firms. The control variables are market-to-book ratio ($Mktbk$), the log of total assets ($Assets$), profitability ($Profit$), tangibility of assets ($Tang$), and median industry leverage ($IndusLev$). These data are from S&P's Compustat database. All control variables are computed as of the end of the calendar year 2003, i.e., with a lag of one year compared to the corporate leverage measures. ExecuComp MEAN values are calculated from 1,351 U.S.-based, non-financial, and non-utility firms covered by ExecuComp in 2004.

			Percentile				ExecuComp
	MEAN	**STD**	**10^{th}**	**50^{th}**	**90^{th}**	**N**	**MEAN**
$Mktbk$	1.769	1.241	0.710	1.428	3.134	605	1.796
$Assets$	7.119	1.606	5.164	6.950	9.349	605	7.140
$Profit$	0.113	0.139	0.009	0.121	0.240	605	0.112
$Tang$	0.247	0.183	0.050	0.201	0.515	605	0.268
$IndusLev$	0.154	0.153	0.004	0.104	0.369	605	0.166

Table I:

CEO Personal Home Leverage

The table reports summary statistics for financing of primary residences of CEOs for a sample of S&P 1,500 firms. In Panel A, *HomeLev* is determined at the time of the CEO home purchase, and is computed as the mortgage divided by the purchase price of the home. If the purchase price is not available and there is no mortgage, then *HomeLev* is set to zero. If a mortgage is found but if any one of the mortgage amount, purchase price, or the improvement cost (if the home is new construction) is unavailable, then *HomeLev* is set to missing. Statistics for *HomeLev* are for the unconditional sample, and for *HomeLev* | *Mort* the reported sample statistics are conditional on the CEO using a mortgage to finance the home. Mortgage Amount is the sum of the first and second mortgages at the time of the CEO's home purchase. Panel B reports the percent of the sample and number of observations that use mortgage finance in the purchase of their primary residence (Mortgage usage at purchase), that use either a mortgage at the time of the purchase or debt financing on their home at some point in time (Home leverage usage), and for which there is no public record that the CEO ever used debt (Never use leverage). The U.S. median data are tabulated from 2005 data provided by the Federal Housing Finance Board – Periodic Summary Tables and the 2005 American Community Survey Subject Tables. Mortgage amounts are displayed in 2005 home price dollars. Values are adjusted using the Office of Federal Housing Enterprise Oversight's National Home Price Index.

Panel A

	MED	**MEAN**	**STD**	**MIN**	**MAX**	**N**	**U.S. MED**
HomeLev	0.47	0.40	0.35	0.00	1.00	608	
HomeLev | *Mort*	0.66	0.63	0.21	0.01	1.00	385	0.75
Mortgage Amount ($1000s)	1,047	1,233	973	54	8,626	430	212

Panel B

	%	**N**
Mortgage usage at purchase	66.0	642
Home leverage usage	73.8	642
Never use leverage	22.0	642

Table II:

Determinants of Personal Leverage

The table reports the coefficients and standard errors from regressing $HomeLev$ on determinants of personal leverage. The sample is non-financial S&P 1,500 firms. $HomeLev$ is the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase. $PurAge$ is the age of the CEO at the time of his home purchase. $PurAfterCeo$ is a dummy variable that is equal to one if the home was purchased after the purchaser became CEO. $LnMedHmVal$ is the natural logarithm of the median home value in the county in which the CEO's primary residence is located. County level median home value data is obtained from the 2005 American Community Survey. $MortRate30$ is the prevailing 30-year conventional fixed mortgage rate in the month and year of the CEO's home purchase. Data on monthly mortgage rates is obtained from the Federal Reserve Economic Database series MORTG. $MktRet_{5yr}$ is the five-year annualized return of the value-weighted CRSP index ending on the last day of the month prior to the CEO's home purchase. $TaxIncRatio$ is the ratio of CEO compensation for which the CEO cannot defer the tax liability. $LnCashComp$ is the natural logarithm of the total cash compensation (ExecuComp data item TOTAL CURR) of the CEO in the year of the home purchase adjusted to 2005 dollars. This compensation includes salary plus bonuses. It is computed as the CEO's salary plus bonus divided by total compensation in the year of the home purchase (ExecuComp items TOTAL CURR / TDC1). The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$PurAge$	0.0001					-0.0032	-0.0048**		
	(0.0017)					(0.0020)	(0.0022)		
$PurAfterCeo$		-0.0444				-0.0663**	-0.0671*		
		(0.0311)				(0.0337)	(0.0355)		
$LnMedHmVal$			0.0679***			0.0746***	0.0672**		
			(0.0254)			(0.0247)	(0.0261)		
$MortRate30$				-3.9221***		-6.0716***	-4.8663		
				(0.6008)		(0.7285)	(4.3941)		
$MktRet_{5yr}$					0.1355	0.4475**	-0.2542		
					(0.1664)	(0.1792)	(0.6674)		
$TaxIncRatio$								-0.0053	
								(0.0638)	
$LnCashComp$									-0.0344*
									(0.0193)
$Intercept$	0.3981***	0.4138***	-0.4558	0.7008***	0.3844***	0.0463	-0.2323	0.4248***	0.6552***
	(0.0848)	(0.0166)	(0.3231)	(0.0496)	(0.0240)	(0.3441)	(0.4758)	(0.0314)	(0.1321)
$AdjR^2$	-0.0017	0.0018	0.0102	0.0402	-0.0006	0.0785	0.1010	-0.0027	0.0053
N	605	605	605	605	605	605	605	364	392
Fixed Effects	No	No	No	No	No	No	PurYear	No	No

Table III:

CEO Personal and Corporate Leverage

Panel A (B) of the table reports coefficients and standard errors from regressing the total debt to market (book) value of assets of the firm in 2004 (TDM) ((TDA)) on determinants of capital structure, using OLS estimation. Control variables are constructed using 2003 data and defined as in Table B2. $IndusLev$ is the median industry leverage by 4-digit SIC code corresponding to the measure of leverage used for the dependent variable. The sample is non-financial S&P 1,500 firms. $HomeLev$ is defined as the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase. $HL80$ is a dummy variable that equals one if $HomeLev > 0.80$, and zero otherwise. Column (5) includes industry fixed effects by 2-digit SIC code. $HomeLevPredict$ and $HomeLevRes$ are the predicted and residual series from regression (6) in Table II. Panel C of the table displays the incremental increase in adjusted-r-square caused by adding each of the determinants of capital structure to a model which includes only industry fixed effects by 2-digit SIC codes. The dependent variable in panel C is TDM. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

Panel A

Dependent Variable: TDM	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$HomeLev$	0.0632***	0.0781***	0.0666***	0.0718***	0.0784***	0.0631***	
	(0.0226)	(0.0192)	(0.0192)	(0.0179)	(0.0180)	(0.0202)	
$HL80$						-0.0662	
						(0.4122)	
$HL80 \times HomeLev$						0.0963	
						(0.4388)	
$HomeLevPredict$							-0.0419
							(0.0576)
$HomeLevRes$							0.0828***
							(0.0190)
$Mktbk$		-0.0454***		-0.0281***	-0.0346***	-0.0279***	-0.0273***
		(0.0076)		(0.0058)	(0.0072)	(0.0058)	(0.0057)
$Assets$		0.0284***		0.0199***	0.0202***	0.0201***	0.0204***
		(0.0049)		(0.0045)	(0.0047)	(0.0046)	(0.0045)
$Profit$		-0.2616***		-0.2691***	-0.2011**	-0.2727***	-0.2721***
		(0.0846)		(0.0683)	(0.0887)	(0.0687)	(0.0664)
$Tang$		0.2458***		0.0659	0.1374**	0.0659	0.0624
		(0.0452)		(0.0468)	(0.0598)	(0.0468)	(0.0469)
$IndusLev$			0.7247***	0.5607***		0.5604***	0.5562***
			(0.0555)	(0.0670)		(0.0675)	(0.0666)
$Intercept$	0.1535***	-0.0054	0.0409***	-0.0136	-0.0388	-0.0134	0.0286
	(0.0102)	(0.0409)	(0.0109)	(0.0352)	(0.0975)	(0.0354)	(0.0408)
$AdjR^2$	0.0106	0.2890	0.3230	0.4160	0.4220	0.4150	0.4190
N	605	605	605	605	605	605	605
Fixed Effects	No	No	No	No	Indus	No	No

Table III continued on the next page.

Table III continued from the previous page.

Panel B

Dependent Variable: TDA	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$HomeLev$	0.0545**	0.0650***	0.0607***	0.0620***	0.0747***	0.0499**	
	(0.0228)	(0.0214)	(0.0212)	(0.0203)	(0.0226)	(0.0232)	
$HL80$						-0.1601	
						(0.4844)	
$HL80$ x $HomeLev$						0.2052	
						(0.5202)	
$HomeLevPredict$							-0.0438
							(0.0615)
$HomeLevRes$							0.0722***
							(0.0217)
$Mktbk$		-0.0025		0.0070	-0.0009	0.0073	0.0077
		(0.0093)		(0.0089)	(0.0106)	(0.0088)	(0.0088)
$Assets$		0.0225***		0.0143***	0.0170***	0.0146***	0.0149***
		(0.0049)		(0.0050)	(0.0054)	(0.0051)	(0.0051)
$Profit$		-0.2577**		-0.2914***	-0.2290*	-0.2966***	-0.2939***
		(0.1173)		(0.1057)	(0.1304)	(0.1065)	(0.1042)
$Tang$		0.1929***		0.0667	0.1083	0.0664	0.0638
		(0.0434)		(0.0451)	(0.0675)	(0.0452)	(0.0452)
$IndusLev$			0.5262***	0.4933***		0.4932***	0.4870***
			(0.0544)	(0.0687)		(0.0688)	(0.0685)
$Intercept$	0.1828***	0.0040	0.0869***	-0.0059	-0.0697	-0.0050	0.0334
	(0.0098)	(0.0416)	(0.0138)	(0.0395)	(0.0737)	(0.0394)	(0.0435)
$AdjR^2$	0.0084	0.0986	0.1460	0.1860	0.1550	0.1850	0.1880
N	605	605	605	605	605	605	605
Fixed Effects	No	No	No	No	Indus	No	No

Table III continued on the next page.

Table III continued from the previous page.

Panel C

Dependent Variable: TDM	(1)	(2)	(3)	(4)	(5)	(6)
$HomeLev$		0.0742***				
		(0.0198)				
$Mktbk$			-0.0462***			
			(0.0066)			
$Assets$				0.0190***		
				(0.0051)		
$Profit$					-0.2094***	
					(0.0665)	
$Tang$						0.1624***
						(0.0627)
$Intercept$	0.1401	0.1123	0.1709	0.0051	0.1501	0.0946
	(0.1036)	(0.0835)	(0.1069)	(0.1057)	(0.1112)	(0.1078)
$AdjR^2$	0.3000	0.3160	0.3760	0.3190	0.3200	0.3100
$\Delta AdjR^2$		0.0160	0.0760	0.0190	0.0200	0.0100
N	605	605	605	605	605	605
Fixed Effects	Indus	Indus	Indus	Indus	Indus	Indus

Table IV:

Timing of Personal Leverage Choices

The table reports coefficients and standard errors from regressing different measures of corporate leverage computed in 2004 on determinants of capital structure, using OLS estimation. Control variables are constructed using 2003 data and defined as in Table B2. The sample is non-financial S&P 1,500 firms. $HomeLev$ is defined as the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase. Column (1) reports regression results using observations in which the CEO's most recent home purchase was made prior to becoming CEO. Column (2) reports regression results using observations in which the CEO's most recent home was purchased prior to 1999. Column (3) reports regression results using observations in which the CEO's most recent home was purchased after 1998. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

	Prior to Being CEO	Earlier Leverage Choices	Recent Leverage Choices
	(1)	(2)	(3)
$HomeLev$	0.0647***	0.0471*	0.0882***
	(0.0226)	(0.0263)	(0.0260)
$Mktbk$	-0.0275***	-0.0196***	-0.0450***
	(0.0070)	(0.0067)	(0.0095)
$Assets$	0.0162***	0.0188***	0.0210***
	(0.0054)	(0.0058)	(0.0069)
$Profit$	-0.2623***	-0.3217***	-0.1311
	(0.0796)	(0.0771)	(0.0817)
$Tang$	0.0885	0.0082	0.1233*
	(0.0563)	(0.0617)	(0.0736)
$IndusLev$	0.6258***	0.6550***	0.4565***
	(0.0780)	(0.0966)	(0.0915)
$Intercept$	0.0008	-0.0097	-0.0101
	(0.0438)	(0.0474)	(0.0524)
$AdjR^2$	0.4240	0.4180	0.4170
N	427	296	309

Table V:

Effects of Persistence in Corporate Leverage

The table reports coefficients and standard errors from regressing the total debt to market (book) value of assets of the firm in 2004 (TDM) ((TDA)) on determinants of capital structure, using OLS estimation. Control variables are constructed using 2003 data and defined as in Table B2. The sample is non-financial S&P 1,500 firms. $HomeLev$ is defined as the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase. $FirmLeverage_{-i}$ is firm leverage lagged by i years, where the measure of leverage corresponds to the dependent variable. $IndusLev$ is the median industry leverage by 4-digit SIC code corresponding to the measure of leverage used for the dependent variable. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

Dependent Variable	TDM			TDA		
	(1)	(2)	(3)	(4)	(5)	(6)
$HomeLev$	0.0718***	0.0697***	0.0838***	0.0620***	0.0525***	0.0606**
	(0.0179)	(0.0175)	(0.0241)	(0.0203)	(0.0187)	(0.0240)
$FirmLeverage_{-5}$		0.4159***			0.5435***	
		(0.0512)			(0.0396)	
$FirmLeverage_{-10}$			0.3262***			0.3758***
			(0.0725)			(0.0817)
$Mktbk$	-0.0281***	-0.0138***	-0.0316***	0.0070	0.0179*	0.0152
	(0.0058)	(0.0053)	(0.0082)	(0.0089)	(0.0095)	(0.0116)
$Assets$	0.0199***	0.0185***	0.0092	0.0143***	0.0077*	-0.0011
	(0.0045)	(0.0044)	(0.0061)	(0.0050)	(0.0043)	(0.0065)
$Profit$	-0.2691***	-0.3213***	-0.3074***	-0.2914***	-0.2886***	-0.3141**
	(0.0683)	(0.0702)	(0.0912)	(0.1057)	(0.0854)	(0.1416)
$Tang$	0.0659	0.0590	0.0872	0.0667	0.0178	0.0485
	(0.0468)	(0.0449)	(0.0568)	(0.0451)	(0.0364)	(0.0479)
$IndusLev$	0.5607***	0.3522***	0.4012***	0.4933***	0.2706***	0.3562***
	(0.0670)	(0.0669)	(0.0861)	(0.0687)	(0.0640)	(0.0963)
$Intercept$	-0.0136	-0.0683*	0.0432	-0.0059	-0.0376	0.0702
	(0.0352)	(0.0369)	(0.0518)	(0.0395)	(0.0350)	(0.0534)
$AdjR^2$	0.4160	0.5540	0.4920	0.1860	0.4440	0.2680
N	605	504	322	605	508	322

Table VI:

Effects of Zero Personal Leverage and Scaling

The table reports coefficients and standard errors from regressing the total debt to market value of assets of the firm in 2004 (TDM) on determinants of capital structure, using OLS estimation. Control variables are constructed using 2003 data and defined as in Table B2. The sample is non-financial S&P 1,500 firms. $ZeroPersLev$ is an indicator variable that equals one if there is no public record that the CEO ever used debt, and zero otherwise. $Mort$ is a dummy variable that takes a value of one if the CEO uses a mortgage to finance the purchase of his home and takes a value of zero otherwise. $MortRefi$ is an indicator variable that equals one if there is evidence that the CEO uses a mortgage at the time of purchase or some time other than the time of purchase for his primary residence, and zero otherwise. $LnMortAmt$ is the natural logarithm of the real value of the total mortgage amount used by the CEO in his most recent home purchase. $LnPurPrice$ is the natural logarithm of the real purchase price of the CEO's most recent primary home purchase. Real mortgage values and purchase prices are computed in 2005 home price dollars using the Office of Federal Housing Enterprise Oversight's National Home Price Index. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

	(1)	(2)	(3)	(4)
$ZeroPersLev$	-0.0494***			
	(0.0138)			
$Mort$		0.0464***		
		(0.0124)		
$MortRefi$			0.0512***	
			(0.0131)	
$LnMortAmt$				0.0033***
				(0.0009)
$LnPurPrice$				-0.008
				(0.0074)
$Mktbk$	-0.0281***	-0.0288***	-0.0283***	-0.0282***
	(0.0059)	(0.0059)	(0.0059)	(0.0059)
$Assets$	0.0177***	0.0184***	0.018***	0.0194***
	(0.0045)	(0.0045)	(0.0044)	(0.0045)
$Profit$	-0.2712***	-0.2656***	-0.2708***	-0.2683***
	(0.0690)	(0.0694)	(0.0690)	(0.0691)
$Tang$	0.0713	0.0671	0.07	0.0643
	(0.0475)	(0.0472)	(0.0474)	(0.0476)
$IndusLev$	0.5729***	0.5657***	0.5711***	0.5641***
	(0.0672)	(0.0666)	(0.0669)	(0.0669)
$Intercept$	0.0381	-0.005	-0.0115	0.1035
	(0.0334)	(0.0355)	(0.0356)	(0.1043)
$AdjR^2$	0.4120	0.4130	0.4140	0.4110
N	605	605	605	605

Table VII:

Effects of CEO Personal Characteristics

The table reports the relationship between *HomeLev* and various other CEO characteristics. In Panel A summary statistics and correlations with *HomeLev* are reported for each of the CEO characteristics. In Panel B the coefficients and standard errors are reported for various CEO characteristics as determinants of corporate leverage (including *HomeLev*). The estimates are obtained from regressing the total debt to market value of assets of the firm in 2004 (TDM) on the baseline model of capital structure reported in Table III column (4) plus the noted characteristic, using OLS estimation. Coefficient estimates and standard errors for the control variables are not reported. . *HomeLev* is defined as the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase. *EqOwn* is the log of the market value of the CEO's equity ownership in the firm. Ownership data are from ExecuComp and price data are from CRSP. *Founder* is an indicator variable equal to one if the CEO is the founder of the company, and zero otherwise. The data on founder CEOs are from Fahlenbrach (2009). *Age* is the age of the CEO in 2004. *Tenure* is the number of years the CEO held the CEO position as of 2004. *DepBaby* is a dummy variable that is equal to one if the CEO was born during the period 1920 to 1929. *Cohort* is the decade in which the CEO was born (i.e. if the CEO was born in 1945 *Cohort* is 1940). *Military* is a dummy variable that is equal to one if the CEO has military experience and is zero otherwise. MBA is a dummy variable that is equal to one if the CEO has an MBA and is zero otherwise. *PriorCFO* is a dummy variable that is equal to one if the CEO was ever CFO of a company and is zero otherwise. *FinBack* is a dummy variable that is equal to one if *PriorCFO* equals one or the CEO has a degree in the area of finance and is zero otherwise. The data on CEOs career paths, educational background, and military history is hand collected from Marquis Who's Who database and the NNDB online database. We are able to identify 358 (59.1%) of the 605 CEOs in the sample using these sources. $Confident$ is a dummy variable that is equal to one if in the years 2001 through 2003 more news articles use confident adjectives than cautious adjectives and is zero otherwise. *Cautious* is a dummy variable that is equal to one if in the years 2001 through 2003 more news articles use cautious adjectives than confident adjectives and is zero otherwise. In constructing both the *Cautious* and $Confident$ variables we follow the methodology outlined in Malmendier et al. (2010). The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

Panel A

	Mean	St. Dev.	N	Corr. with *HomeLev*
EqOwn	8.3824	2.1632	535	-0.2006***
Founder	0.0463	0.2103	605	-0.0707*
Age	54.6860	6.8385	605	-0.1694***
Tenure	7.1372	6.5432	605	-0.1312***
DepBaby	0.0033	0.0574	605	-0.0667
Cohort	1,944.8760	7.2919	605	0.1615***
Military	0.0615	0.2405	358	-0.0652
MBA	0.3743	0.4846	358	0.0153
PriorCFO	0.1229	0.3288	358	0.0642
FinBack	0.1453	0.3528	358	0.0265
Confident	0.0645	0.2458	605	-0.0445
Cautious	0.0099	0.0992	605	-0.1159***

Table VII continued on the following page.

Table VII continued from the previous page.

Panel B

	(1)	(2)	(3)	(4)
HomeLev	0.0670***	0.0717***	0.0717***	0.0600**
	(0.0191)	(0.0238)	(0.0180)	(0.0252)
EqOwn	-0.0053*			-0.0091**
	(0.0032)			(0.0041)
Founder	-0.0309			-0.0292
	(0.0218)			(0.0340)
Age	0.0002			
	(0.0009)			
Tenure		-0.0020		0.0017
		(0.0015)		(0.0019)
DepBaby		-0.0351		-0.0831
		(0.0560)		(0.0538)
Cohort		-0.0019		-0.0013
		(0.0013)		(0.0011)
Military		0.0636		0.0012
		(0.0542)		(0.0344)
MBA				0.0157
				(0.0183)
PriorCFO				0.0069
				(0.0248)
Confident			-0.0002	-0.0185
			(0.0301)	(0.0265)
Cautious			-0.0018	-0.0578*
			(0.0512)	(0.0342)
Baseline Controls	Yes	Yes	Yes	Yes
$AdjR^2$	0.387	0.409	0.414	0.374
N	535	358	605	319

Table VIII:

CEO Turnover and Changes in Corporate Leverage

Panel A of this table reports summary statistics for changes in CEO $HomeLev$ for 84 S&P 1,500 non-financial firms. $HomeLev$ is defined as the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase and $HomeLevPrev$ is the home leverage of the firm's previous CEO. Panel B reports regression results using the 84 sample firms for which changes in $HomeLev$ are calculated. Column (1) of Panel B reports coefficients and standard errors from regressing $HomeLev$ on $HomeLevPrev$. Columns (2) and (3) of Panel B report coefficients and standard errors from regressing the change in the total debt to market value of assets of the firm ($TDMChg$) on changes in the determinants of capital structure, using OLS estimation. Control variables are constructed using one-year lagged data and are defined as in Table B2. $HomeLevChg$ is defined as $HomeLev$ - $HomeLevPrev$. $HomeLevDecr$ is a dummy variable that takes a value of one if the $HomeLev$ of the incumbent CEO is less than the $HomeLev$ of the previous CEO. $HomeLevIncr$ is a dummy variable that takes a value of one if the $HomeLev$ of the incumbent CEO is greater than the $HomeLev$ of the previous CEO. TDM_0 is the year-end TDM of the last full year of the previous CEO's tenure. Columns (2) and (3) include fixed effects for the first year of tenure of the current CEO. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

Panel A

	MED	**MEAN**	**STD**	**MIN**	**MAX**	**N**
Increases in $HomeLev$	0.35	0.41	0.27	0.03	0.95	39
No Change in $HomeLev$	0.00	0.00	0.00	0.00	0.00	15
Decreases in $HomeLev$	-0.29	-0.36	0.25	-0.93	-0.06	30
Changes in $HomeLev$	0.00	0.06	0.42	-0.93	0.95	84

The table continues on the following page.

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Panel B

Dependent Variable	$HomeLev$ (1)	$TDMChg$ (2)	$TDMChg$ (3)
$Intercept$	0.3435***	-0.0674*	-0.0145
	(0.0512)	(0.0346)	(0.0487)
$HomeLevPrev$	0.2319**		
	(0.1007)		
$HomeLevChg$		0.0622*	
		(0.0329)	
$HomeLevDecr$			-0.1152***
			(0.0418)
$HomeLevIncr$			-0.0302
			(0.0345)
TDM_0		0.1609**	0.1599**
		(0.0712)	(0.0626)
$MktbkChg$		-0.0142	-0.0123
		(0.0104)	(0.0089)
$AssetsChg$		0.0065	0.0186
		(0.0312)	(0.0292)
$ProfitChg$		-0.3103**	-0.2985**
		(0.1292)	(0.1321)
$TangChg$		-0.1166	-0.0392
		(0.1755)	(0.1687)
$IndusLevChg$		0.0139	0.0276
		(0.2132)	(0.1794)
$AdjR^2$	0.056	0.094	0.168
N	84	83	83
Fixed Effects	No	Time	Time

Table IX:

Effects of Corporate Governance

The table reports coefficients and standard errors from regressing different measures of corporate leverage computed in 2004 on determinants of capital structure, using OLS estimation. Unreported control variables are constructed using 2003 data and include those in the baseline model defined in column (4) of Table III. The sample is non-financial S&P 1,500 firms. *HomeLev* is defined as the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase. *IncentPay* is the ratio of CEO incentive compensation to total compensation in 2003. It is computed as the CEO's total compensation minus salary and deferred compensation divided by his total compensation (ExecuComp items (TDC1 - SALARY - DEFER RPT AS INC TOT)/TDC1). *SmallBoard* is an indicator variable that is one if the number of directors on the firm's board is less than or equal to the median number of board members per firm in the sample in 2004 (nine directors or less), and is zero otherwise. *GoodGov* is an indicator variable that equals one if the 2004 governance index of Gompers et al. (2003) is less than or equal to six, and zero otherwise. The data on the governance index and board size are from RiskMetrics. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

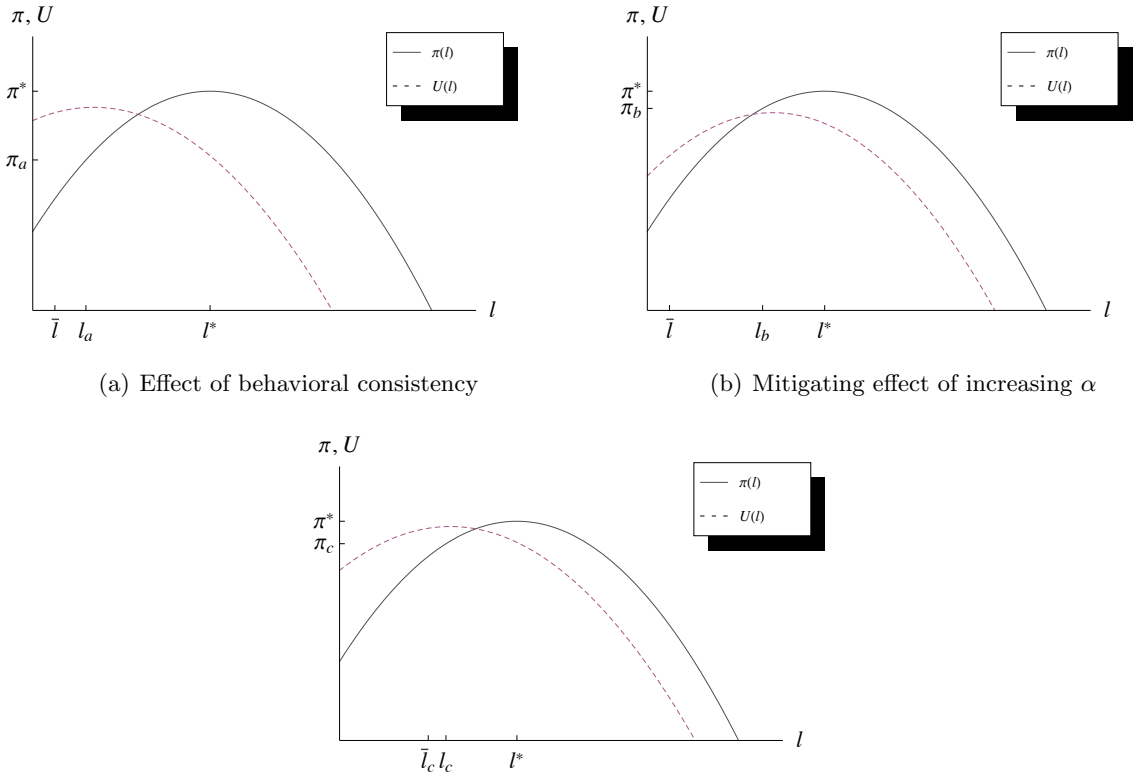
	(1)	(2)	(3)
$HomeLev$	0.1280***	0.0928***	0.0614***
	(0.0445)	(0.0234)	(0.0194)
$IncenPay$	0.0030		
	(0.0356)		
$HomeLev \times IncenPay$	-0.1163		
	(0.0749)		
$SmallBoard$		0.0172	
		(0.0173)	
$HomeLev \times SmallBoard$		-0.0711**	
		(0.0324)	
$GoodGov$			-0.0341*
			(0.0187)
$HomeLevXGoodGov$			-0.0253
			(0.0397)
Baseline Controls	Yes	Yes	Yes
$AdjR^2$	0.4010	0.4480	0.4320
N	580	483	535

Table X:

Corporate Valuation Effects

The table reports coefficients and standard errors from regressing firm value (Q) on various determinants of firm value, using OLS estimation. Control variables are constructed using 2003 data and Q is defined as 2004 $Mktbk$ defined as in Table B2. *AbsDev* is the absolute value of the difference between the predicted values from a standard corporate leverage model specification with and without $HomeLev$ included. Figure IV displays a histogram of this variable. *AbsDevQ4* is an indicator variable which is one if the firm is in the quartile with the largest absolute deviation. *Assets* is the natural logarithm of total firm assets. $EBIT$ is a measure of profitability and is defined as EBIT/Sales. $CAPEX$ is a measure of capital expenditures and is defined as CAPEX/Sales. $SPDum$ is a dummy variable that is one if the firm was a member of the S&P 500 in 2004 and zero otherwise. Lev is 2003 TDM as defined in the appendix. $IndusQ$ is the median Q value for the firm's 4-digit SIC industry for the universe of Compustat firms. Definitions for *SmallBoard* and *GoodGov* are found in Table IX. The sample is non-financial S&P 1,500 firms. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

	(1)	(2)	(3)	(4)
AbsDev	-7.1425			
	(6.2225)			
AbsDevQ4		-0.2618**	-0.4112***	-0.2754***
		(0.1305)	(0.1084)	(0.1046)
SmallBoard			0.0713	
			(0.1054)	
AbsDevQ4 × *SmallBoard*			0.3541*	
			(0.1957)	
GoodGov				-0.1468
				(0.1158)
AbsDevQ4 × *GoodGov*				0.3909*
				(0.2135)
Assets	-0.3638***	-0.3775***	-0.1896***	-0.1756***
	(0.0720)	(0.0742)	(0.0535)	(0.0462)
EBIT	-0.0037	-0.0035	0.9289**	0.5119***
	(0.0053)	(0.0052)	(0.3903)	(0.1735)
CAPEX	0.7382	0.7704	0.785*	1.0423**
	(0.6352)	(0.6178)	(0.4147)	(0.4123)
SPDum	1.1106***	1.122***	0.764***	0.7173***
	(0.1887)	(0.1910)	(0.1639)	(0.1573)
Lev	-0.0126***	-0.0135***	-1.7203***	-1.5329***
	(0.0038)	(0.0036)	(0.2934)	(0.2477)
IndusQ	0.5387***	0.5327***	0.3908***	0.3709***
	(0.1209)	(0.1205)	(0.1196)	(0.1069)
Intercept	3.3817***	3.391***	2.4401***	2.4421***
	(0.6643)	(0.6170)	(0.3784)	(0.3491)
$AdjR^2$	0.2490	0.2520	0.2890	0.2850
N	605	605	483	535



(a) Effect of behavioral consistency

(b) Mitigating effect of increasing α

(c) Mitigating effect of selecting $\bar{l}_c > \bar{l}$

Figure I:

Behavioral Consistency in Corporate & Personal Leverage

The figure shows the mechanism through which a CEO's debt tolerance may affect corporate leverage decisions and firm value according to the theory of behavioral consistency. In all panels both firm value, $\pi(l)$, and CEO utility, $U(l)$, are plotted, where $\pi(l)$ and $U(l)$ are defined in Equations (1) and (2). Under the neoclassical theory of the firm, managers choose l^* to maximize firm value at π^*. Under the theory of behavioral consistency managers instead maximize $U(l)$ which is also dependent on their comfortableness with their choice of corporate debt. This comfortableness is measured as the squared deviation from their personal target debt level, $\bar{l}$. Under this theory the manager chooses $l = \alpha l^* + (1-\alpha)\bar{l}$. Panel (a) shows that behavioral consistency causes corporate leverage to be pushed toward the CEO's personal target leverage ratio. Instead of choosing l^*, where firm value is π^*, the CEO suboptimally chooses l_a and achieves π_a. Panels (b) and (c) show the two ways that firms can mitigate the potentially value-destroying effect of behavioral consistency. Panel (b) shows the effect of increasing α. This is analogous to increasing the incentive alignment of the manager with the firm. Doing so puts more weight on firm value in the CEO's utility function and pushes his decision toward l^*, at l_b, achieving $\pi_b > \pi_a$. Panel (c) shows the effect of choosing a manager with a target debt level that is better aligned with the firm's optimal capital structure. Through optimal selection, firms can choose managers who will be likely to implement the capital structure that maximizes firm value. In this case, choosing a CEO with a greater $\bar{l}_c > \bar{l}$ pushes the leverage choice up to l_c, achieving firm value, $\pi_c > \pi_a$.

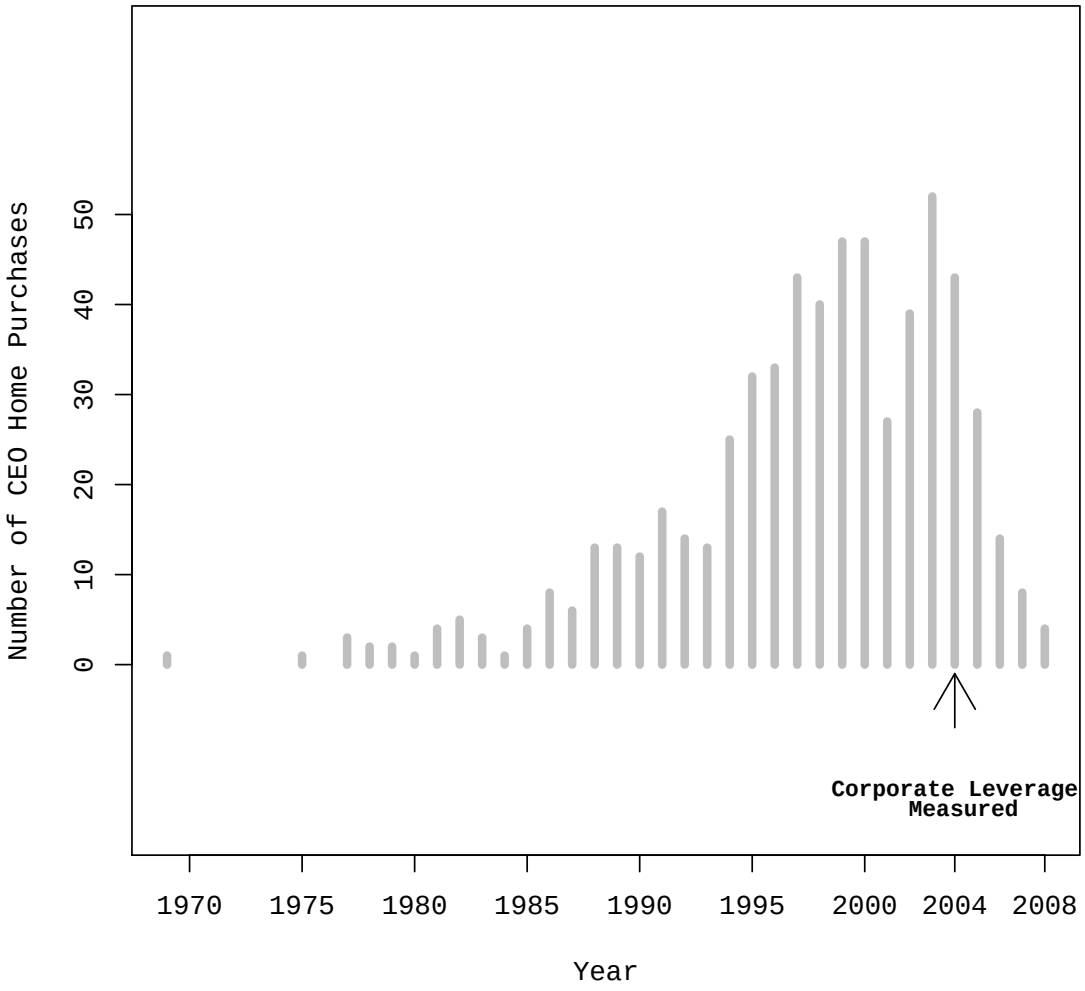


Figure II:

CEO Home Purchase Timing

This figure shows the distribution, by purchase year, of the most recent home purchase for the 570 CEOs of non-financial S&P 1,500 firms in office at the end of 2004 for whom we were able to calculate $HomeLev$.

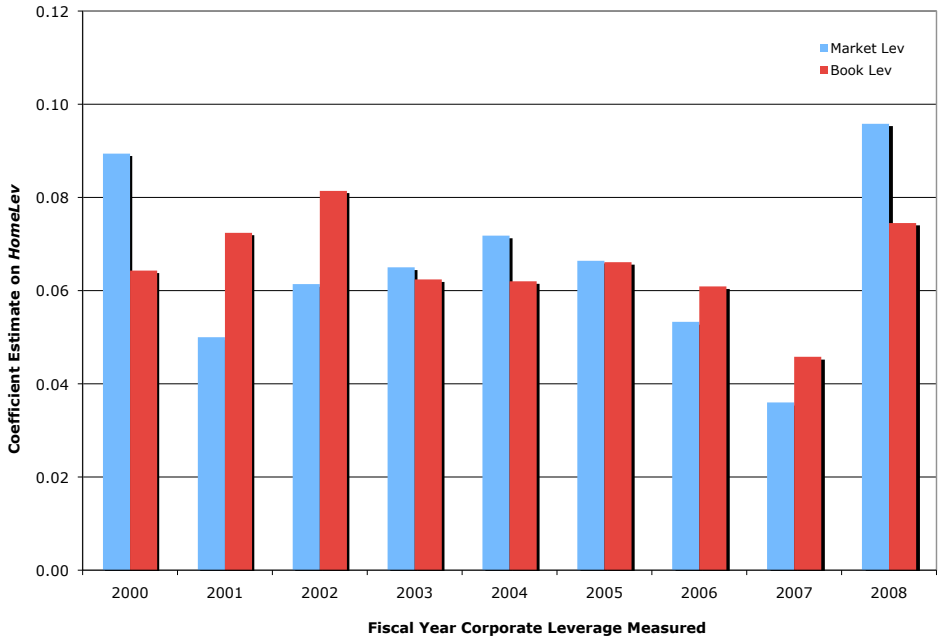


Figure III:

HomeLev Coefficient Estimates Across Years

This figure shows the coefficient estimates on *HomeLev* measuring corporate leverage in years outside of 2004. Estimates are computed using the baseline model (Table III, column (4)). Only observations that occur during CEO tenure are used in the estimation.

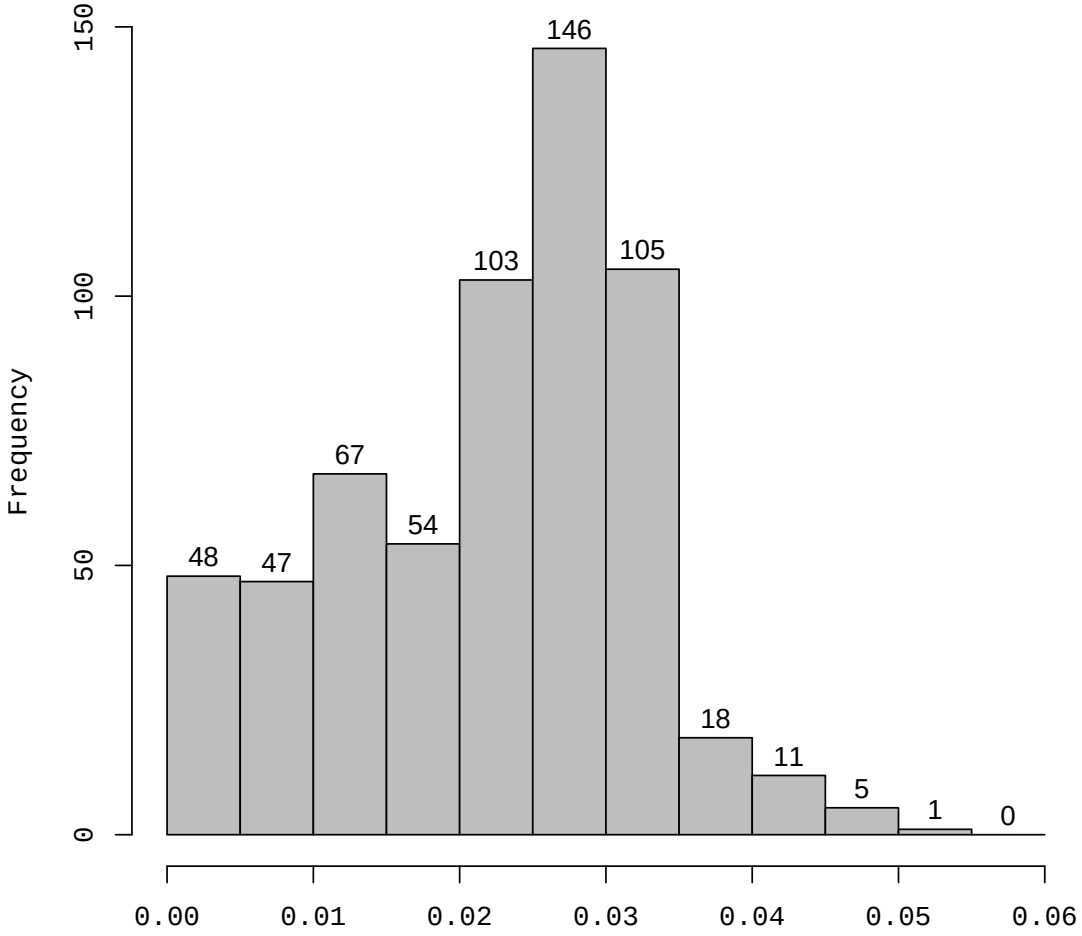


Figure IV:

Absolute Deviations from Predicted Corporate Leverage

The figure shows the distribution of the absolute deviations from predicted corporate leverage due to the CEO's debt preference as measured by $HomeLev$, which is defined as the ratio of mortgage value to purchase price used by the firm's CEO in his most recent primary home purchase. Absolute deviations are computed as the absolute value of the difference between the fitted values from a regression of corporate leverage (TDM) on $Mktbk$, $Assets$, $Profit$, $Tang$, and $IndusLev$, i.e., the baseline model specification, column (4) in Table III. There are 605 observations in the sample.