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Behavioral Consistency in Corporate Finance: CEO Personal and Corporate Leverage

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Abstract

We show empirically that firms behave remarkably similarly to how their CEOs behave personally in the context of leverage choices. Using a database of CEOs' leverage in their most recent home purchases, we find a positive, economically significant, robust relation between personal home leverage and corporate leverage in the cross-section and when we examine CEO turnover. The results are consistent with an endogenous matching of CEOs with firms based on leverage 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 empirically that CEOs' behavioral consistency across personal and professional situations can, at least in part, predict the corporate financial behavior of the firms they manage.

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Abstract

We show empirically that firms behave remarkably similarly to how their CEOs behave personally in the context of leverage choices. Using a database of CEOs' leverage in their most recent home purchases, we find a positive, economically significant, robust relation between personal home leverage and corporate leverage in the cross-section and when we examine CEO turnover. The results are consistent with an endogenous matching of CEOs with firms based on leverage 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 empirically that CEOs' behavioral consistency across personal and professional situations can, at least in part, predict the corporate financial behavior of the firms they manage.

"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 similar in terms of these fundamentals often choose very different corporate leverage. This has led researchers to more recently explore other potential determinants. In particular, readily observable personal characteristics, e.g., the age and educational background of the firm's top executive, the Chief Executive Officer (CEO), have been studied. Our study also follows an approach of studying CEO characteristics, but we attempt to explain corporate capital structures based on what CEOs have revealed about themselves and their "debt tolerance" through past *personal* leverage decisions. This hypothesis is based on an extensive set of studies in psychology on "behavioral consistency" theory, i.e., the notion that individuals tend to exhibit consistent behaviors across comparable situations. We find that this is a promising research approach because firms are found to behave remarkably similarly to how their CEOs behave personally in the context of leverage choices. Besides extending our understanding of the determinants of corporate capital structures, the broader contribution of the paper is to show empirically that CEOs' personal behavior can, in part, predict corporate financial behavior of the firms they manage.

To be sure, most prior empirical studies assume, at least implicitly, that a firm's CEO does not 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 personal 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 beliefs and preferences across CEOs may matter for corporate leverage choices. For example, in an 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, researchers have recently identified several observable personal 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. In Schoar (2007), CEOs who started their careers in recessions later on make more conservative capital structure decisions. This is consistent with Malmendier and Nagel (2010), who report that past economic shocks have a lasting influence on risk-taking behavior. Identifying yet other characteristics, according to Bertrand and Schoar (2003), CEOs with MBAs are more comfortable with debt, while CEOs from older age cohorts are not. Finally, based on a survey, Graham et al. (2009) report that CEOs with a financial background are significantly more likely to take on more debt.[1] Not everyone agrees with a conclusion that corporate leverage is related to CEO characteristics, however. After collecting personal data on CEOs, and finding some significant results, Frank and Goyal (2009) conclude that, "leverage choices are not all that closely connected to readily observable managerial traits" (p. 5). CEOs still matter in their study, since a CEO fixed effect is important in their leverage regressions. It is also worth noting that most of these studies focus on different personal characteristics, and that, in the few cases of overlap, they do not always agree. For example, the CEO having an MBA matters for corporate leverage in Bertrand and Schoar (2003), but it does not according to Graham et al. (2009).

[1] We focus on reviewing empirical studies, but it is worth pointing out that there also are theoretical papers which incorporate 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.

While each of the studies on CEO characteristics has individually enhanced our understanding of the determinants of corporate leverage, cumulatively the literature poses several challenging questions. Which of the CEO characteristics mimic others, and what is their relative role? Does it take a combination of characteristics for a CEO to meaningfully influence the corporate debt decision? And, importantly, what crucial CEO characteristics are we missing? The approach that we adopt in this paper attempts to take into account the issues raised by these questions, even as it sidesteps answering them directly. In contrast with existing studies on personal CEO characteristics and corporate leverage, our approach is based on behavioral consistency theory.[2] An individual, in our specific case a firm's CEO, is predicted to exhibit consistent behavior across situations regarding debt decisions. Although we have not previously noted the term "behavioral consistency" in financial economics, we are aware of several studies in finance, economics, as well as accounting that support this notion.[3] For example, Hong and Kostovetsky (2010) find that mutual fund managers who make personal campaign donations to Democrats invest less of the portfolios they manage (relative to Republican donors) in firms deemed socially irresponsible (e.g., tobacco, guns, or defense firms or companies with bad employee relations or diversity records). That is, their personal preferences predict their professional decisions. Hutton, Jiang, and Kumar (2010) find that Republican CEOs pursue more conservative corporate policies than do Democrats. 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. Chyz (2010) finds that CEOs who are personally more tax aggressive manage firms with more tax avoidance activities.

In the context of corporate leverage, the challenge is to identify a comparable situation. We propose the study of the personal leverage decision of the firm's CEO, as in his choice of mortgage for his primary residence. We choose the financing of the CEO's primary residence because it involves the same 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

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

[3]Borghans et al. (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).

personal indebtedness. In effect, we posit that the mix and interplay of all the factors that determine what we might call a CEO's "debt tolerance" are captured by his personal leverage (the mortgage to purchase price ratio). Based on behavioral consistency theory, we predict that corporate and personal leverage are positively related. This constitutes a joint test of the hypotheses that similar relevant CEO preferences are invoked in home and in corporate leverage decisions, and that the behavioral consistency theory is valid. A positive relation may not be supported if behaviors are too situation-specific.[4] It is an empirical question whether, in the context of capital structure decisions, CEOs' personal home leverage decisions successfully predict the corporate leverage of the firms they manage, and how this measure performs relative to what we can infer from other personal CEO characteristics.

There is an alternative 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 view therefore predicts an inverse relation between personal and corporate leverage. It is not obvious a priori as to which effect, behavioral consistency or hedging, is dominant.

We start our empirical analysis following Liu and Yermack (2007) and construct a database with very detailed information on CEOs' primary homes and mortgages.[5] In the U.S., data on neither total wealth nor total indebtedness of individuals are 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 personal 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 (with a

[4]See, e.g., Mischel (1968), Slovic, 1972b, 1972a, 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.

median of 40 percent). That is, some CEOs choose significantly higher personal leverage than do others, because of more debt tolerance, or because of other economic factors.

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 their personal leverage manage firms that choose 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 just a little less explanatory power (incremental adjusted R^2) than firm size and profitability, and more explanatory power than tangibility, another important determinant of corporate capital structures. We also examine several measures that are not subject to a concern about the specific scaling by purchase price. We find that CEOs who do not use a mortgage (at the time of the home purchase) manage firms with about 4.6 percentage points lower leverage, and those who never use 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 many other personal characteristics recently proposed in the literature, as in Bertrand and Schoar (2003), Graham et al. (2009), and Malmendier et al. (2010). 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 readily observable firm or CEO characteristics. Surprisingly, we find no evidence supporting the hedging hypothesis, not even among the CEOs who are the most levered in their homes.

What are the mechanisms through which the positive relation between personal and corporate leverage arises? One channel is endogenous matching of CEOs and firms. CEOs with specific personal characteristics match with firms that have demand for those characteristics. Explanations for such matching include efficient risk allocation such that CEOs who are willing to tolerate more

[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, reducing concerns that an omitted contemporaneous variable such as mortgage/interest rates jointly explains both personal and corporate leverage.

financial risk match most optimally with firms for which higher corporate leverage is optimal. An alternative mechanism is that CEOs imprint their personal preferences on the capital structures of the firms they manage, whether or not it is optimal for shareholders. Because the relation between personal and corporate leverage is more significant for CEOs who are subject to weaker incentive-based compensation contracts and less efficient board governance, we conclude that CEOs are only able to imprint their personal preferences when governance is relatively weaker. Our evidence is consistent with both endogenous matching of CEOs to firms and the imprinting of CEO preferences on corporate leverage.

A direction of recent empirical research has been to study the persistence of corporate capital structures. For example, it has been shown that firm fixed effects explain a significant, if not a majority, of the heterogeneity in corporate leverage across firms (Lemmon, Roberts, and Zender, 2008). Our findings do not contradict this important result; by contrast, one of our findings is that boards commonly replace a CEO with one with a similar debt tolerance, which contributes to the persistence in capital structures. Some of our findings are also consistent with studies which report that agency problems have an effect on corporate capital structures (e.g., Jung et al. (1996) and Berger et al. (1997)) because we find that when governance is weak, CEOs can imprint their personal debt preferences on the firms they manage.

We also address the question of whether behavioral consistency in the context of corporate capital structure decisions destroys shareholder value. Clearly, even in a non-M&M world, leverage decisions may be irrelevant if the matching of CEOs and firms is optimal such that conservative CEOs match with firms for which a conservative capital structure is optimal, and vice versa. However, the finding that the relation between personal leverage and corporate leverage is stronger when corporate governance is relatively weaker suggests value effects from the behavior documented in this study. Indeed, we find that large deviations in corporate capital structures caused by personal leverage are related to significantly lower Q ratios. This evidence is consistent with long-standing arguments that CEOs do not always choose capital structures with a value-enhancing level of debt (e.g., Jensen and Meckling (1976)), but the specific channel through which this agency cost arises in the present paper has not been studied previously.

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 VII concludes.

II Empirical Predictions

In this section, we propose two contrasting 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 in psychology. Those on the person side believe that there is relatively consistent heterogeneity across individuals in, e.g., their thoughts and behaviors.[7] Those on the situation side, in contrast, believe that how individuals think and behave is largely, if not exclusively, situation-dependent (e.g., Mischel (1968), Slovic, 1972b, 1972a, and Endler and Magnusson (1976)).

The basic 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 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 purely illustrative purposes, it may be useful to provide a simple and stylized model involving

[7] One reason for such consistency in behavior may be genetic factors. For example, studies of twins estimate that as much as 50 percent of the variance in common personality traits may be attributed to genetic factors (e.g., Bouchard et al. (1990)).

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 in financial economics 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 is costly for the CEO personally. There exists evidence to support such a prediction. For example, Gilson (1989) finds increased CEO turnover if firms are in default on their debt, bankrupt, or privately restructuring their debt,[8] dismissed CEOs are commonly not employed by another public firm for at least three years, possibly because of bankruptcy stigma and loss of reputational capital, and CEOs who retain their positions experience compensation reductions (Gilson and Vetsuypens, 1993). Also, CEOs of financially distressed firms commonly hold fewer seats on other boards following their departures (Gilson, 1990). The hedging hypothesis predicts that CEOs with more personal leverage are more likely to avoid these costs by choosing lower corporate leverage.

[8]See Weisbach (1988) and Warner et al. (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.[9] 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.[10] 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.

[9] 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.

[10] 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 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.[11]

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. 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.

It seems unlikely that heterogeneity in home leverage across CEOs is caused entirely by personal tax differences. First, the tax code in the U.S. allows married (single) 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

[11] 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.

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.[12]

IV Are Personal and Corporate Leverage Related?

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).[13] We use a market-based measure of corporate leverage, the ratio of total debt to market value of assets (TDM).[14] 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), we find that the estimated coefficient on personal home 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

[12]The number of observations is reduced by about a third 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.

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

[14]The results are robust to using alternative measures of corporate leverage, e.g., total debt to book value of assets (TDA). Additional analysis of long-term debt to total market value of assets (LDM) and long-term debt to total book value of assets (LDA) reveals that our results are driven by variation in long-term debt ratios across firms.

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. See Appendix B for summary statistics. We choose this set of controls to follow Frank and Goyal (2007).[15] 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 in the rest of the paper, 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.[16]

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 home leverage is still positive (0.0784) and statistically significant at the 1%-level (t-statistic = 4.36).[17] That is, the support for the behavioral consistency hypothesis remains unchanged.

A non-linear relation may mask support for the hedging hypothesis. Specifically, 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 $HL80$ 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 non-linear effects. This result shows that

[15] 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).

[16] 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.

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

we find no evidence of CEOs offsetting their personal leverage by changing their firms' leverage in a countervailing fashion, not even among the CEOs who are the most highly levered. This result is somewhat surprising, but could be explained by many public U.S. firms being relatively under-levered and thus the expected costs of financial distress for the vast majority of firms are low.

In the column (7), we explore the nature of the predictive power of $HomeLev$ by decomposing this 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 baseline model of $HomeLev$ determinants estimated in column (6) of Table II.[18] 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 increase a CEO's personal home leverage, this predictable effect is not driving our result; it is the residual component of $HomeLev$ that is significantly related to corporate capital structures.[19]

Panel B of Table III illustrates the explanatory power of $HomeLev$ relative to the other core 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. $Assets$ and $Profitability$ 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. Only $Mktbk$ explains a substantially larger increment in adjusted R^2.

[18]The alternative to our reduced form approach is to develop a structural model. The advantage of a structural model is that, if $HomeLev$ is capturing risk aversion, then we are in a position to estimate managers risk aversion parameters and to interpret those parameters. On the other hand, if something other than risk aversion is driving the relationship between personal and corporate leverage, then the model is mispecified. We believe that in this particular case the benefits of structural estimation do not outweigh the costs.

[19]Throughout the paper, we conservatively report findings with $HomeLev$ itself instead of the residual since the residual depends on the choice of controls. We do this despite the use of residual providing even stronger results. When a model with industry fixed effects and $HomeLevRes$ is estimated analogous to the specification in Table III, Panel B, we find that $HomeLevRes$ increases the adjusted r-squared by 0.019, which is greater than the increase in r-squared attributed to $HomeLev$ and is identical to the added explanatory power of firm size.

B Timing of Home Purchases

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 home purchase. In Table IV, we examine if there is a differential effect of personal home leverage conditional on when the CEO purchased the home. In column (2), we examine 296 CEOs who purchased their home more than five years prior to 2004. In column (2), we examine 309 CEOs who purchased their home more recently, defined as after 1998. Note that even for this subset, only fourteen percent of CEOs purchased their homes in 2004. We find that both estimated coefficients are positive,0.0471 and 0.0882, respectively. The first is significant at the 10%-level, while the second is significant at the 1%-level. Two conclusions can be drawn from this exercise. First, more recent home purchase transactions may be more precise estimates of CEOs' debt tolerance, which may explain the stronger relation. Second, and most importantly, this evidence reduces concerns that an omitted variable jointly explains both personal and corporate leverage, because it shows that $HomeLev$, even if measured more than five years earlier than corporate leverage, is still positively related to corporate leverage.

In another attempt to see how timing may affect the relation between corporate leverage and $HomeLev$, we run regressions when the home purchases occurred before the manager was hired as CEO, (3), and after his being hired as CEO, (4). While arguably the CEO may alter his $HomeLev$ to conform with anticipated corporate leverage after his appointment, reverse causality can not explain the significant findings reported in (3). Finally, to rule out cases where $HomeLev$ choices might follow corporate leverage decisions in 2004, where reverse causality is most feasible, we drop all observations with home purchases in 2004 or later. The resulting estimation, (5), still shows a positive and significant relation between corporate leverage and $HomeLeve$.

C Economic Magnitude of the Estimated Effect

The regression results show a positive, statistically significant, and robust relation between personal and corporate leverage, supporting the behavioral consistency hypothesis. 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.

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.

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 III, 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.

D Alternative Measures of Personal Leverage

So far, we have used $HomeLev$, the mortgage to purchase price ratio, as a measure of a CEO's personal leverage. One concern with this measure is the specific scaling (purchase price) used because it may be argued that the CEO's wealth is a preferred scaling variable. A CEO's wealth cannot be measured with any precision using U.S. data. As a result, we re-estimate our baseline model specification using several alternative measures, which are not scaled and thus not subject to this particular concern.

In column (1) of Table V, 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. We find

that the estimated coefficient is positive (0.0464) and significant at the 1%-level. That is, firms with CEOs without mortgages have about 4.6 percentage points lower leverage than firms with CEOs with mortgages. In column (2), we include an indicator variable ($MortRefi$), which is one if the CEO uses a mortgage at the time of purchase or any other time, and zero otherwise. This effect is also statistically significant at all levels, and somewhat larger (5.1 percentage points). In column (3), we include an indicator variable that is one if the CEO never used any mortgage, home equity lines/loans, or other forms of short-term debt home financing, and zero otherwise, i.e., the CEO never uses personal leverage ($NeverLever$). We find that the capital structures of firms of CEOs who never lever are significantly different than those who are levered at some point. The difference is about 4.9 percentage points. These effects are large given a median leverage of 12.6 percent among our sample of firms. That is, the conclusion of a positive relation between personal leverage and corporate leverage, and thus the support for the behavioral consistency hypothesis, remains unchanged.

In column (4), we explore whether it is the numerator or denominator of $HomeLev$ that is driving our result. If the denominator (the purchase price of the home) 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 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. This is further evidence that $HomeLev$ is measuring CEO debt tolerance and not wealth.

E Effects of Other Personal Characteristics

What is the effect of other personal CEO characteristics proposed in the prior literature? It is possible that our measure of personal leverage is correlated with other characteristics that explain the cross-section of corporate capital structures. In Table VI, we therefore re-estimate the baseline model specification with other potentially important CEO characteristics included. Unless otherwise noted, our data sources are *Marquis Who's Who* and *NNDB*. The data collection procedures and

definitions of CEO characteristics follow their prior use in the literature.

In Panel A of Table VI, we report descriptive statistics and correlations between corporate leverage (TDM), personal home leverage ($HomeLev$), and other personal CEO characteristics. We see a number of significant unconditional correlations with TDM, but that is without the benefit of controlling for other variables. So, in Panel B our starting point is the baseline model with $HomeLev$ omitted from the regression, which is column (4) in Table III, where TDM is the dependent variable and firm and industry variables are the independent variables. Taking turns, one at a time, we introduce a number of CEO characteristics, and report coefficients for only the CEO characteristics. The coefficients for the other control variables (firm and industry level) are not shown. The wealth-related CEO characteristics ($EqOwn$ and $Founder$) are significant explanatory variables. Their coefficients are, however, negative, which is unexpected. Wealthier CEOs are expected to take on more debt if risk aversion decreases with wealth. The indicator variable for growing up during the Depression enters with a significant negative coefficient. Note, however, that the findings on $DepBaby$ are based on a mere couple of CEOs, who were born that long back and are still serving as CEOs.

Importantly, in Panel C we next add in $HomeLev$ and allow it to compete with the CEO characteristics in Panel B in explaining TDM. Note that other core control variables (firm and industry level) are still included but not tabulated. Also note that the adjusted r-squared in Panel C is higher in every case compared to the corresponding regression in Panel B. Adding $HomeLev$ provides additional explanatory power. We consider first the impact of including each CEO characteristic along with $HomeLev$.

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, 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, CEO age (Age) because older CEOs may have accumulated more wealth. In columns (1) – (3), we find that the estimated coefficient on $HomeLev$ remains

unchanged. We conclude that differences in wealth across CEOs do not seem to explain the positive relation between personal and corporate leverage.

Risk Aversion. Bertrand and Schoar (2003) notes 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 take 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. We also consider *Age* itself, which is the age of the CEO in 2004 (54.7 years on average). *Cohort* is the decade in which the CEO was born, which on average falls in the 1940s. *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. $Military$ 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. $Tenure$ 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. Columns (3) – (7) show that the sign and statistical significance of $HomeLev$ is unaffected by the inclusion of these risk aversion measures.

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. In column (8), a CEO having an MBA does not affect the relation of $HomeLev$ with corporate leverage.

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. Columns (9) and (10) show that the relation between corporate leverage and $HomeLev$ is unaffected by controlling for CFO or finance background.

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, where they may finance their homes with too much debt. Though this reasoning 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). Columns (11) and (12) show that the sign and statistical significance of $HomeLev$ is unaffected by controlling for overconfidence measures.

In Panel D, we include combinations of CEO characteristics alongside $HomeLev$, instead of one at a time. The combinations are selected based on correlations in Panel A to avoid multicollinearity among CEO characteristics (e.g., $PriorCFO$ and $FinBack$ have a high correlation of 0.908). Though $EqOwn$, $DepBaby$ and $Cautious$ appear significantly in some specifications, the relation between TDM and $HomeLev$ remains significant and positive. In column (4), we include all of the personal CEO characteristics simultaneously (except Age because it is highly correlated with $Tenure$). The estimated coefficient on $HomeLev$ is 0.0600 (statistically significant at the 5%-level). That is, after controlling for about a dozen different variables, we conclude that the effect of personal leverage is not subsumed by other personal CEO characteristics proposed in the prior literature.

Finally, we ask how our CEO decision, $HomeLev$, is related to the CEO characteristics used in the prior literature. For this purpose, in Panel E we repeat our baseline regression for personal home leverage (column (6) in Table II) after introducing CEO characteristics from the prior literature as additional explanatory variables. There is one other change to the baseline regression. We drop $PurAge$ (CEO age at the time of purchase) and $PurAfterCEO$ (indicator variable with value one if home purchase is made after CEO appointment, otherwise zero) because these two control variables are correlated with the age and wealth-based CEO characteristics. Essentially, we retain just the environmental economic control variables. We find that $HomeLev$ is significantly related to $EqOwn$, Age, $Tenure$, $DepBaby$, $Cohort$, and $Cautious$. All have coefficients with the expected signs, which suggests that $HomeLev$ draws upon beliefs and preferences in largely the "right" way. We also ran specifications with multiple CEO characteristics as explanatory variables (again with economic control variables still in place). In untabulated results, we find that Age and $Cohort$ drop off, while the other significant variables continue to appear significantly in some of the specifications. Of course, there is never a significant relation with the other 6 out of 12 CEO characteristics. Overall, it is difficult to draw conclusions without a better understanding of the CEO characteristics that drive debt tolerance.

It could be argued that the CEO characteristics that drive CEOs' personal leverage decisions are mostly related to risk aversion. If $HomeLev$ captures only risk aversion, then we would expect $HomeLev$ to be significantly related to other firm characteristics and corporate policies. In

unreported results we test whether $HomeLev$ is related to firm cash holdings, stock price volatility, and dividend policy. We find that while in some specifications $HomeLev$ is significantly positively (negatively) related to stock price volatility (paying dividends), that these results are not robust to the inclusion of relevant firm specific characteristics. We conclude that risk aversion does play a role in how CEOs make leverage decisions, but that this is only one element that goes into the decision-making process. The theory of behavioral consistency explains the robust positive relation between personal and corporate leverage better than does a theory of risk aversion alone.

F Robustness Checks

We have performed a number of robustness checks (untabulated). One concern is that $HomeLev$ may proxy for regional effects because of possible systematic relations between geography, personal, and corporate leverage.[20] We have therefore re-estimated our baseline model specification including state fixed effects, but our result remains unaffected.

Controlling for home characteristics also does not change our results. 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 affect our results.

A subset of 1 percent of our sample firms are recent IPO firms, which often have very low leverage. If these firms' CEOs use the proceeds from the offering to purchase a home, a concern is that it may partly 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. Our results are unaffected by excluding firms that in 2004 have been on Compustat for less than five years.

[20]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 (e.g., 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 seems unlikely given our previous results that CEOs in regions with higher median home prices have higher home leverage.

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 turnover during the previous three years; we 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 "new" (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 new CEOs, we calculate corporate leverage for the first full year that the CEO is 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 VII 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 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)

[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.

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 new 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 new and previous CEOs. That is, if the previous CEO of a firm had relatively low personal leverage, the new 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.

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.

B Endogenous Matching of CEOs and Firms

One mechanism through which the positive relation between personal and corporate leverage arises is endogenous 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. Explanations for such matching include 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

[22] We checked the robustness by including a measure of changes in expected inflation using data from the Livingston Survey, www.phil.frb.org/econ/liv/index.html, but the results remain unchanged (untabulated).

equilibrium, CEOs with specific personal characteristics match with firms that have demand for those characteristics because they are expected to increase shareholder value in the firm. Differences in match quality across CEOs can explain why firms' boards spend 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. Specifically, it is in firms with relatively weak 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 VIII 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

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

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. Because it is likely that the relationship between incentive pay and CEO incentives is non-linear, in column (2) we create an indicator variable that takes a value of one if the CEO has $IncenPay$ greater than zero, and zero otherwise ($IncenPayDum$). We again are interested in the interaction between this dummy variable and $HomeLev$. The estimated coefficient on the interaction variable is -0.3373 with a t-statistic of 1.97. That is, CEOs who are subject to stronger incentive-based compensation contracts are less likely to imprint their personal preferences on the firms they manage (Hermalin and Weisbach, 2003).

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 (3), 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 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. This helps highlight a caveat regarding board size as well as the other measures of corporate governance that we employ. A strand of the literature points to the endogenous manner in which these measures are adopted so that one should not expect firm value to be related to them.

Finally, 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

[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]

D Corporate Valuation Effects

The question of whether behavioral consistency in the context of corporate capital structure decisions destroys value or not for shareholders is a challenging one to address. It may be irrelevant if the matching of CEOs to firms is optimal (as implicitly assumed in M&M). However, as we have shown, governance may be weak in some firms and as a result the matching of CEOs to firms is not always optimal for all firms, and CEOs may imprint their personal preferences on the firms they manage regardless of whether it destroys shareholder value.

Table IX examines corporate valuation effects. Q is defined as $Mktbk$ (in 2004). In column (1), we regress Q on $AbsDev$ and a set of control variables. 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. We find that the estimated coefficient on $Absdev$ is -7.1425, but it is not statistically significant. 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 largest deviation, and regress Q on $AbsDevQ4$. The estimated coefficient is -0.2618 and statistically significant at the 5%-level. That is, the largest deviations in corporate capital structures caused by personal leverage are related to Q ratios that are 0.26 lower, all else equal. The economic magnitude of this effect is sizeable because the mean (median) Q ratio in our sample is 1.791 (1.391). This evidence is consistent with long-standing arguments that CEOs do not always choose capital structures with a value-enhancing level of debt (e.g., Jensen and Meckling (1976)), but the specific channel through which this agency cost arises in the present paper has not been studied previously.[27] If this value-destroying effect can be mitigated by good corporate governance, then we should observe that the interaction between governance variables and $AbsDevQ4$ should be positive.

[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] Other empirical evidence which suggests that agency has an effect on capital structures include Jung et al. (1996) and Berger et al. (1997).

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.

VI Conclusion

In this paper, we construct a large database of home mortgages and purchase prices for CEOs in place in 2004 for S&P 1500 firms. We find that there is significant heterogeneity in their personal leverage (mortgage-to-value ratios), ranging from 0 to 100% with a standard deviation of 35%. This heterogeneity represents differences in preferences regarding debt, i.e., their debt tolerance. Based on the theory of behavioral consistency, we predict that corporate and personal leverage are positively related. The empirical evidence strongly supports this prediction. Comparing two CEOs that differ in their personal leverage by one standard deviation, the market-based corporate leverage for the CEO with the less personal debt is 2.5 percentage points lower. CEOs who never use leverage to finance their home, at the time of purchase or subsequently, have 4.9 percentage points lower corporate leverage. Given that the median corporate leverage is 12.6%, these findings point to an economically significant effect. In terms of explaining the variation in observed capital structure, personal leverage is roughly comparable to important established determinants of capital structure, such as size and profitability. Personal leverage also contributes significantly even after we control for CEO characteristics proposed in the prior literature to explain corporate leverage. It explains more of the variation in corporate capital structure than any one of these other personal CEO characteristics.

We also examine the mechanisms through which the positive relation between corporate and personal leverage can arise. One channel is endogenous matching of CEOs and firms, whereby firms seeking conservative capital structures match with CEOs with conservative personal leverage because of efficient risk allocation. Another mechanism is that CEOs are able to imprint their personal debt preferences on the firms they manage if the corporate governance is weak. In that

case, we would expect that firm value is adversely affected. We find evidence in support for both channels.

The broader contribution of the paper is to show empirically that personal decisions of CEOs, along with the notion of behavioral consistency in their behavior, can be a valuable basis to predict corporate financial decision-making. In other fields of economic research, Heckman and Rubinstein (2001) and Heckman et al. (2006) have recently shown the predictive power of the personality and personal characteristics for schooling, occupational choice, wages, etc. The specific notion of personal leverage as a predictor of professional decisions has potential applications in financial economics outside of corporate finance, for example in explaining the leverage in investment managers' portfolios. Future research should examine these and related questions.

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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.

- **Never lever ($NeverLever$)**: 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 × 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 × 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**	**10^{th}**	**50^{th}**	**90^{th}**	**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.

- **Log of Sales ($Sales$)**
  $Sales$ is the log of Compustat item 12, sales.

- **Collateral ($Colltrl$)**
  $Colltrl$ is the ratio of (Compustat item 3, inventory + item 8, net PPE) to item 6, assets.

- **Z-score ($Zscore$)**
  $Zscore$ is the unleveraged Z-score. It is calculated as 3.3 × Compustat item 170, pretax income + item 12, sales + 1.4 × item 36, retained earnings + 1.2 × ((item 4, current assets - item 5, current liabilities)/item 6, assets).

- **Median industry leverage ($IndustLev$)**
  IndustLev is the median of total debt to market value of assets (TDM) by four-digit SIC code.

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:

Personal and Corporate Leverage

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. $HomeLev$ 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. 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

	(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

	(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 Home Purchases

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 home was purchased prior to 1999. Column (2) reports regression results using observations in which the CEO's home was purchased after 1998. Columns (3) and (4) report regression results using observations in which the CEO's home before and after becoming CEO, respectively. Column (5) reports regression results using observations in which the CEO's home was purchased prior to 2004. The table reports White (1980) heteroscedasticity-consistent standard errors. Significance levels are denoted by *, **, ***, which correspond to 10, 5, and 1 percent levels, respectively.

	Purchase Prior to 1999	Purchase After 1998	Before Hired as CEO	After Hired as CEO	Purchase Prior to 2004
	(1)	(2)	(3)	(4)	(5)
$HomeLev$	0.0471*	0.0882***	0.0647***	0.0825***	0.0635***
	(0.0263)	(0.0260)	(0.0226)	(0.0282)	(0.0203)
$Mktbk$	-0.0196***	-0.0450***	-0.0275***	-0.0314***	-0.0258***
	(0.0067)	(0.0095)	(0.0070)	(0.0090)	(0.0059)
$Assets$	0.0188***	0.0210***	0.0162***	0.0285***	0.0184***
	(0.0058)	(0.0069)	(0.0054)	(0.0077)	(0.0048)
$Profit$	-0.3217***	-0.1311	-0.2623***	-0.2861***	-0.2506***
	(0.0771)	(0.0817)	(0.0796)	(0.0886)	(0.0708)
$Tang$	0.0082	0.1233*	0.0885	0.0139	0.0606
	(0.0617)	(0.0736)	(0.0563)	(0.0821)	(0.0537)
$IndusLev$	0.6550***	0.4565***	0.6258***	0.3854***	0.5594***
	(0.0966)	(0.0915)	(0.0780)	(0.1136)	(0.0781)
$Intercept$	-0.0097	-0.0101	0.0008	-0.0367	-0.0040
	(0.0474)	(0.0524)	(0.0438)	(0.0540)	(0.0373)
$AdjR^2$	0.4180	0.4170	0.4240	0.3870	0.3820
N	296	309	427	178	508

Table V:

Alternative Measures of Personal Leverage

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. $Mort$ 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. $NeverLever$ is an indicator variable that equals one if there is no public record that the CEO ever used debt, 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)
$Mort$	0.0464***			
	(0.0124)			
$MortRefi$		0.0512***		
		(0.0131)		
$NeverLever$			-0.0494***	
			(0.0138)	
$LnMortAmt$				0.0033***
				(0.0009)
$LnPurPrice$				-0.008
				(0.0074)
$Mktbk$	-0.0288***	-0.0283***	-0.0281***	-0.0282***
	(0.0059)	(0.0059)	(0.0059)	(0.0059)
$Assets$	0.0184***	0.018***	0.0177***	0.0194***
	(0.0045)	(0.0044)	(0.0045)	(0.0045)
$Profit$	-0.2656***	-0.2708***	-0.2712***	-0.2683***
	(0.0694)	(0.0690)	(0.0690)	(0.0691)
$Tang$	0.0671	0.07	0.0713	0.0643
	(0.0472)	(0.0474)	(0.0475)	(0.0476)
$IndusLev$	0.5657***	0.5711***	0.5729***	0.5641***
	(0.0666)	(0.0669)	(0.0672)	(0.0669)
$Intercept$	-0.005	-0.0115	0.0381	0.1035
	(0.0355)	(0.0356)	(0.0334)	(0.1043)
$AdjR^2$	0.4130	0.4140	0.4120	0.4110
N	605	605	605	605

Table VI:

Effects of Managerial Characteristics

The table reports the relationship between $HomeLev$ and various other CEO characteristics. In Panel A correlations are reported, In Panel B the coefficients and standard errors are reported for various CEO characteristics as determinants of corporate leverage. 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) with $HomeLev$ omitted plus the noted characteristic, using OLS estimation. Coefficient estimates and standard errors for the control variables are not reported. In Panel C, $HomeLev$ is added as a determinant of capital structure for the regressions in Panel B. Coefficient estimates and standard errors are reported for both $HomeLev$ and the specific CEO characteristic being tested. In Panel D, we test several characteristics jointly. Included in these regressions, but not reported are the control variables from the baseline model. In Panel E, the coefficients and standard errors are reported for various CEO characteristics as determinants of $HomeLev$. The estimates are obtained from regressing $HomeLev$ on the specific CEO characteristic, as well as the set of control variables used in Table II column (6), omitting $PurAge$ and $PurAfterCeo$, since these variables are highly correlated with CEO wealth and risk-aversion measures. $HomeLev$ 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

	TDM	$HomeLev$	$EqOwn$	$Founder$	Age	$Tenure$	$DepBaby$	$Cohort$	$Military$	MBA	$PriorCFO$	$FinBack$	$Confident$	$Cautious$
Mean	0.179	0.401	8.382	0.046	54.686	7.137	0.003	1944.876	0.061	0.374	0.123	0.145	0.064	0.010
Std. Dev.	0.198	0.346	2.163	0.210	6.839	6.543	0.057	7.292	0.240	0.485	0.329	0.353	0.246	0.099
N	605	605	535	605	605	605	605	605	358	358	358	358	605	605
TDM	1.000													
$HomeLev$	0.111***	1.000												
$EqOwn$	-0.076*	-0.201***	1.000											
$Founder$	-0.086**	-0.071*	0.253***	1.000										
Age	0.039	-0.169***	0.230***	0.079*	1.000									
$Tenure$	-0.142***	-0.131***	0.445***	0.421***	0.339***	1.000								
$DepBaby$	-0.027	-0.067	0.043	0.124***	0.192***	0.272***	1.000							
$Cohort$	-0.066	0.162***	-0.202***	-0.072*	-0.923***	-0.298***	-0.197***	1.000						
$Military$	0.134**	-0.065	0.098*	0.005	0.183***	0.131**	-0.014	-0.180***	1.000					
MBA	0.021	0.015	-0.028	-0.075	0.035	0.012	-0.041	-0.032	0.115**	1.000				
$PriorCFO$	0.032	0.064	-0.031	-0.036	-0.036	-0.092*	-0.020	0.033	-0.025	0.185***	1.000			
$FinBack$	0.049	0.027	-0.038	-0.047	-0.057	-0.112**	-0.022	0.060	-0.040	0.189***	0.908***	1.000		
$Confident$	0.053	-0.045	0.108**	0.038	0.007	-0.076*	-0.015	-0.019	-0.086	0.068	-0.012	0.047	1.000	
$Cautious$	-0.005	-0.116***	0.101**	-0.022	0.078*	0.062	-0.006	-0.113***	-0.024	0.056	-0.034	-0.038	-0.026	1.000

Table VI continued on the following page.

Table VI continued from the previous page.

Panel B

Dependent Variable: TDM

	$EqOwn$ (1)	$Founder$ (2)	Age (3)	$Tenure$ (4)	$DepBaby$ (5)	$Cohort$ (6)	$Military$ (7)	MBA (8)	$PriorCFO$ (9)	$FinBack$ (10)	$Confident$ (11)	$Cautious$ (12)
CEO Characteristic	-0.0080***	-0.0411*	0.0000	-0.0011	-0.0694***	-0.0003	0.0604	0.0092	0.0016	0.0025	0.0023	-0.0277
	(0.0031)	(0.0234)	(0.0008)	(0.0009)	(0.0223)	(0.0008)	(0.0512)	(0.0180)	(0.0219)	(0.0205)	(0.0306)	(0.0498)
$AdjR^2$	0.373	0.403	0.401	0.402	0.401	0.401	0.395	0.390	0.389	0.389	0.401	0.401
N	535	605	605	605	605	605	358	358	358	358	605	605

Panel C

Dependent Variable: TDM

	$EqOwn$ (1)	$Founder$ (2)	Age (3)	$Tenure$ (4)	$DepBaby$ (5)	$Cohort$ (6)	$Military$ (7)	MBA (8)	$PriorCFO$ (9)	$FinBack$ (10)	$Confident$ (11)	$Cautious$ (12)
CEO Characteristic	-0.0061**	-0.0323	0.0006	-0.0005	-0.0408*	-0.0008	0.0661	0.0076	-0.0034	0.0001	-0.0001	-0.0017
	(0.0030)	(0.0231)	(0.0008)	(0.0009)	(0.0227)	(0.0008)	(0.0505)	(0.0178)	(0.0217)	(0.0199)	(0.0300)	(0.0509)
$HomeLev$	0.0667***	0.0703***	0.0737***	0.0702***	0.0713***	0.0745***	0.0728***	0.0699***	0.0704***	0.0702***	0.0718***	0.0717***
	(0.0188)	(0.0179)	(0.0180)	(0.0181)	(0.0180)	(0.0180)	(0.0240)	(0.0236)	(0.0238)	(0.0237)	(0.0179)	(0.0180)
$AdjR^2$	0.388	0.416	0.416	0.416	0.415	0.416	0.409	0.403	0.402	0.402	0.415	0.415
N	535	605	605	605	605	605	358	358	358	358	605	605

Table VI continued on the following page.

Table VI continued from the previous page.

Panel D

Dependent Variable: *TDM*

	(1)	(2)	(3)	(4)	(5)
HomeLev	0.0670***	0.0717***	0.0717***	0.0600**	0.0666***
	(0.0191)	(0.0238)	(0.0180)	(0.0252)	(0.0190)
EqOwn	-0.0053*			-0.0091**	-0.0061**
	(0.0032)			(0.0041)	(0.0030)
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	-0.0484**
		(0.0560)		(0.0538)	(0.0238)
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*	0.0132
			(0.0512)	(0.0342)	(0.0446)
$AdjR^2$	0.387	0.409	0.414	0.374	0.386
N	535	358	605	319	535

Panel E

Dependent Variable: *HomeLev*

	EqOwn	*Founder*	*Age*	*Tenure*	*DepBaby*	*Cohort*	*Military*	*MBA*	*PriorCFO*	*FinBack*	*Confident*	*Cautious*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CEO Characteristic	-0.0286***	-0.0851	-0.0065***	-0.0058***	-0.4318***	0.0060***	-0.0398	0.0160	0.0617	0.0240	-0.0683	-0.3357***
	(0.0073)	(0.0660)	(0.0020)	(0.0021)	(0.0177)	(0.0019)	(0.0545)	(0.0356)	(0.0515)	(0.0489)	(0.0538)	(0.0581)
$AdjR^2$	0.100	0.068	0.081	0.076	0.070	0.080	0.077	0.077	0.080	0.077	0.067	0.074
N	535	605	605	605	605	605	358	358	358	358	605	605

Table VII:

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

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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 VIII:

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). *IncenPayDum* is an indicator variable that takes a value of one if $IncenPay > 0$ and is zero otherwise. *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.

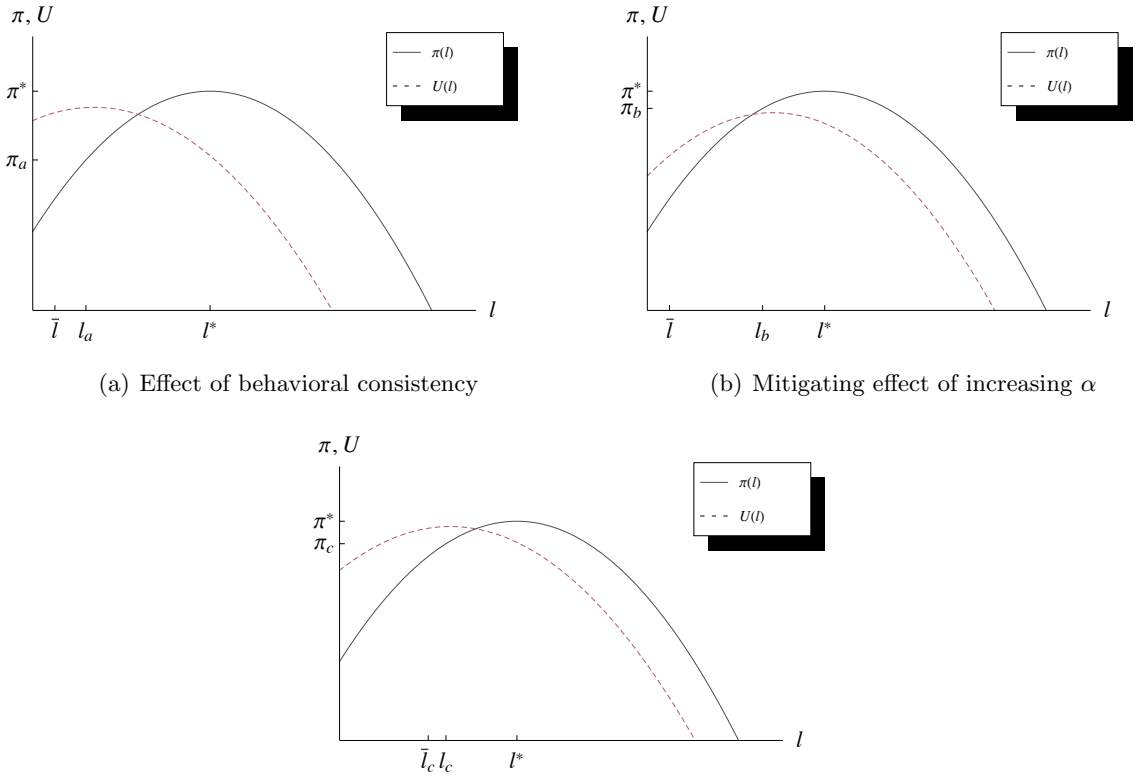
	(1)	(2)	(3)	(4)
HomeLev	0.1280***	0.4030**	0.0928***	0.0614***
	(0.0445)	(0.1707)	(0.0234)	(0.0194)
IncenPay	0.0030			
	(0.0356)			
HomeLevXIncenPay	-0.1163			
	(0.0749)			
IncenPayDum		-0.0059		
		(0.0637)		
HomeLevXIncenPayDum		-0.3373**		
		(0.1715)		
SmallBoard			0.0172	
			(0.0173)	
HomeLevXSmallBoard			-0.0711**	
			(0.0324)	
GoodGov				-0.0341*
				(0.0187)
HomeLevXGoodGov				-0.0253
				(0.0397)
$AdjR^2$	0.401	0.412	0.448	0.432
N	580	580	483	535

Table IX:

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 III 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 VIII. 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, $\pi_c > \pi_a$.

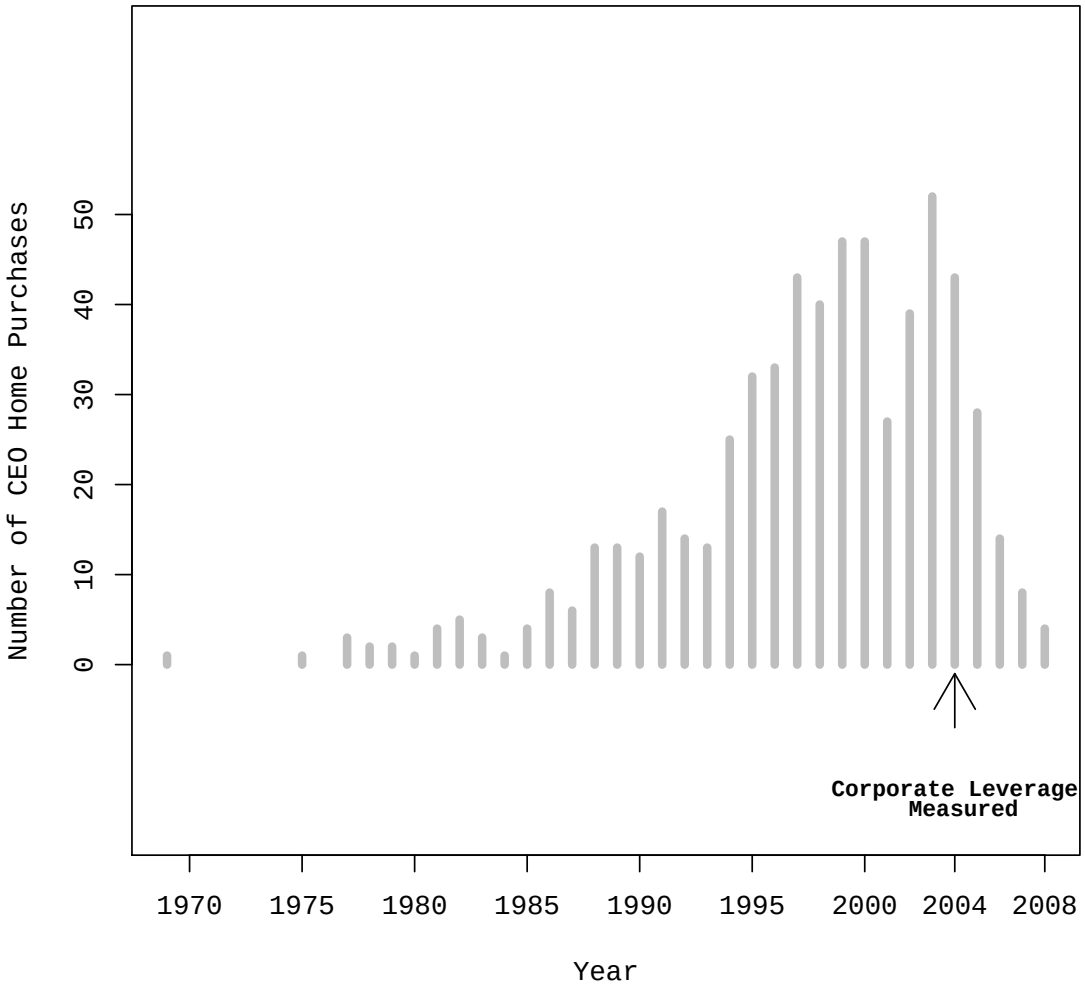


Figure II:

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 $HomeLev$.

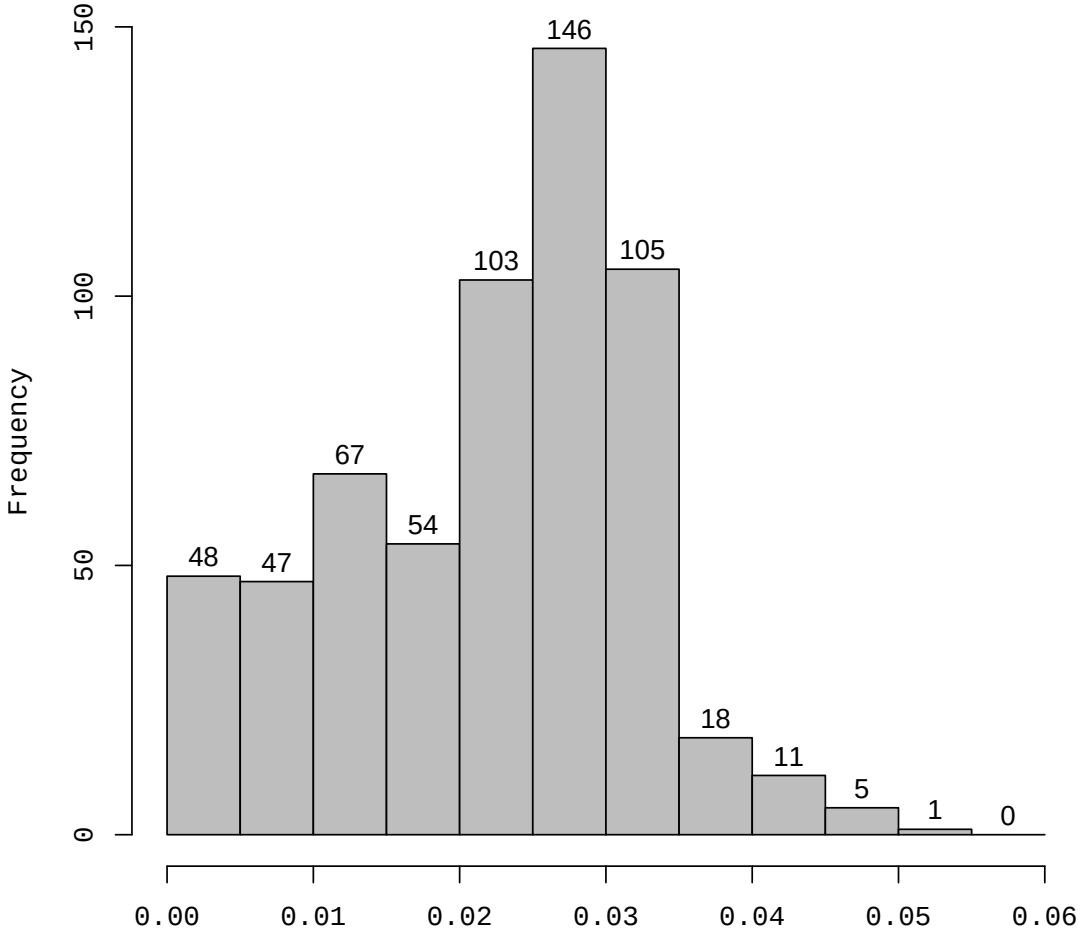


Figure III:

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.