Status, Marriage, and Managers' Attitudes To Risk *

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Abstract

Relative wealth concerns can affect risk-taking behavior, as the payoff to a marginal dollar of wealth depends on the wealth of others. We develop a model where status concerns arise endogenously due to competition in the marriage market and lead to greater risk-taking for unmarried individuals. We evaluate empirically the importance of this effect in a high-stakes setting by studying corporate CEOs. We find that single CEOs, who are more likely to exhibit status concerns, are associated with firms that exhibit higher stock return volatility and pursue more aggressive investment policies. This effect is weaker for older CEOs. Our results hold both when we estimate the impact of marital status directly, and when we use variation in divorce laws across U.S. states to instrument for CEO marital status.

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Relative wealth concerns impact financial decisions by altering individuals' attitudes towards risk. In this paper, we aim to establish an empirical link between status-seeking motives and risk preferences. We study CEOs, whose preferences are likely to be reflected in corporate investment and financial policies (to the extent that CEO wealth is tied to their firms' financial performance through incentive pay or changes in the value of their human capital). CEO decisions involve large financial stakes and have potentially broad-ranging impact on other agents. If status concerns influence such decisions, this would represent strong evidence that they are an important factor affecting risk-taking. Furthermore, if status is particularly important for wealthier individuals, as argued by Becker, Murphy, and Werning (2005) and Roussanov (2010a), focusing on a group of individuals who disproportionately represent the upper end of the wealth distribution should help detect the impact of such concerns on financial decisions.

Following Cole, Mailath, and Postlewaite (2001), we develop a model where concern for relative position arises endogenously from competition for mates in the marriage market. Standard arguments lead to positively assortative matching in marriage markets (e.g., Becker (1973)). In particular, higher wealth individuals are likely to be matched with mates who are highly desirable, in terms of their wealth or other relevant characteristics.[1] As long as the status payoff – i.e., the improvement in the potential quality of the marital match – raises the benefit of an extra dollar of wealth (beyond its pure consumption value), the matching environment creates an incentive for agents to take more idiosyncratic risk than they would in the absence of the status contest. Since changing mates over time is costly, married individuals will exhibit weaker concern for relative wealth position, all else equal. Thus, our model predicts that single individuals, who are presumably expecting to compete for mates in the future, should have a greater tolerance for risk than married ones, and consequently undertake riskier investments.

We test this prediction empirically using a standard sample of U.S. public firms, augmented with a new data set on the marital status of CEOs that we compile from a variety of public sources. We find that companies run by CEOs classified as single in our data set

[1] Charles, Hurst, and Killewald (2011) present evidence of positive marital sorting based on parental wealth.

exhibit higher levels of stock return volatility and pursue more aggressive investment policies than otherwise comparable firms, consistent with the hypothesis of greater risk-taking by single managers. These effects are both economically and statistically quite meaningful. A firm run by a single CEO, controlling for a variety of personal and firm characteristics, invests 10% more and the volatility of its stock returns is 3% higher.

As predicted by the model, the difference in volatilities largely represents varying exposures to idiosyncratic rather than systematic risk. The investment policies vary with marital status for capital expenditures, as well as R&D spending and acquisitions, which are commonly associated with risk-taking. The effect of marital status is weaker for older managers, which is consistent with our theory, as they are less likely to be competing in the marriage market. Importantly, we control for firm characteristics in our analysis, so that our findings do not simply reflect the tendency of single CEOs to be matched with riskier firms. If we omit firm controls, the relationship between marital status and risk-taking becomes significantly stronger, suggesting that single CEOs indeed are more likely to run relatively risky firms.

These results support the hypothesis that single CEOs assume more risk than married ones, and are consistent with our model of CEO status-seeking that is motivated by the desire to find a suitable marriage partner. However, it is also possible that single managers exhibit different risk-taking behavior from married managers even absent status concerns. Individuals who are single at a given age may be inherently more risk-tolerant than those who are married by the same age. To distinguish our explanation from the alternative of innate heterogeneity, we employ an instrumental variable approach.

Our instrument exploits the variation in divorce laws across different states in the U.S., which is very plausibly exogenous to the CEO-firm match and to firms' investment policies. Our basic assumption is that divorce costs should influence an individual's propensity to get married. One aspect of these costs, which should be of particular concern for wealthy individuals, is the division of marital property. We thus distinguish between states where this division is determined by the *community property* standard and those where it is determined by the *equitable distribution* standard. The former mandates equal division of assets acquired during marriage between the two divorcing spouses, whereas the latter allows the division to be determined by a judge based on a range of factors, including the relative contributions of the spouses. It is commonly understood that community property is more advantageous for the poorer spouse (e.g., Voena (2011)). Since a CEO should rarely be in this position, he or she should find divorce costlier in community property states. Consequently, all else equal, a CEO working in such a state should be less likely to get married, a hypothesis that is strongly confirmed by the data.

We also provide evidence that a similar pattern holds in the broader U.S. population, but only for wealthier individuals, exactly as our hypothesis implies. This evidence helps validate our instrumental variables approach, as it indicates that the observed effect of community property regime on marital status is unlikely to just reflect other differences across states, such as income distribution, culture, or religion. Crucially, when we use the state divorce law as an instrument for marital status, all our findings continue to hold (and are actually stronger), suggesting the relation between marital status and risk-taking is not simply driven by innate differences between single and married CEOs.

A large literature exists that assesses the effect of individual CEO characteristics on corporate policies (Bertrand and Schoar (2003), Malmendier and Tate (2005)). One of the important questions in this literature is whether managers can alter their firms' policies to better suit their personal objectives, or whether the observed differences in the behavior of firms run by different managers simply reflect the matching of executives and firms along the relevant (but difficult to observe for an econometrician) characteristics (e.g., more risk-tolerant CEOs work for riskier firms).[2] While we cannot completely rule out the latter mechanism as an explanation for our results, we find it reasonably unlikely, as marital status is not a permanent characteristic of a CEO. Moreover, even if CEOs were always optimally matched to firms, so that their preferences are fully in line with shareholder interests, our findings would still show that riskier firms prefer single CEOs, who are more willing to engage in risky projects.

Apart from understanding manager and firm behavior as such, we are interested in shed-

[2]Malmendier, Tate, and Yan (2011) and Schoar and Zuo (2011) trace the impact of the CEOs earlier life experiences on firm policies and performance. Kaplan, Klebanov, and Sorensen (2008) examine the role of particular types of managerial skills of the prospective CEOs, whereas Adams, Almeida, and Ferreira (2005) focus on the concentration of decision-making power in the hands of the CEOs. Bennedsen, Perez-Gonzalez, and Wolfenzon (2006) and Bennedsen, Nielsen, Perez-Gonzalez, and Wolfenzon (2007) use Scandinavian data to identify exogenous shocks to CEO appointment and termination using life events. Graham, Harvey, and Puri (2011) directly measure behavioral traits of CEOs and link them to firm actions.

ding light on the role of status concerns for wealthy individuals, who are likely to be marginal investors in financial markets. Status concerns have been proposed as explanations for gambling behavior (Robson (1992)), local bias in portfolios (Cole, Mailath, and Postlewaite (2001) and DeMarzo, Kaniel, and Kremer (2004)), and other forms of under-diversification, such as entrepreneurial risk-taking (Roussanov (2010a)). Our findings confirm the importance of such concerns by highlighting how they impact even high-stakes decisions. Models of status differ in their predictions as to whether status considerations lead to greater tolerance for idiosyncratic or aggregate risk. In particular, models that feature "keeping up with the Joneses," as in Abel (1990), exhibit conformist, or herding, behavior (e.g., Gollier (2004), DeMarzo, Kaniel, and Kremer (2004)). In contrast, the prediction that competition for status leads to greater idiosyncratic risk-taking ("getting ahead of the Joneses"), whether resulting from marital sorting or not, is driven by the feature that the marginal benefit of an extra dollar of wealth is increasing in relative wealth (e.g., Gregory (1980), Becker, Murphy, and Werning (2005)). Therefore, analyzing the differences in attitudes towards idiosyncratic risk by varying the strength of status concerns can shed light on which class of reduced-form relative wealth preferences is empirically relevant, potentially yielding implications for asset pricing and risk sharing.

There is a large literature in evolutionary psychology that links status, mating, and risk-taking behavior, especially among males. Overwhelming evidence exists that wealth and socioeconomic status are positively related to men's reproductive success.[3] Both experimental and survey evidence indicate that mating concerns induce signaling of wealth through conspicuous consumption and financial risk-taking. This literature also documents greater risk-taking by subjects confronted with situations suggestive of mating or competing for mates (Wilson and Daly (2004) and Baker and Maner (2008)). In the economics literature, Barber and Odean (2000) show that single men display more overconfident trading behavior then single women (or married couples). Household survey data also appears to indicate that for males a change in marital status from single to married is associated with a decrease in the portfolio share invested in stocks and similar risky assets (Love (2010)).

[3] See Hopcroft (2006), Nettle and Pollet (2008), and Pollet and Nettle (2009), and extensive references therein.

Postlewaite (1998) advocates modeling status concerns as arising endogenously due to non-market interactions (such as marriage and other settings where allocations depend on matching) rather than being hard-wired into preferences. While we pursue the same modeling approach here, one can also interpret our results as consistent with the view that both risk-taking and marriage market behavior are determined biologically, and that the link between the two is shaped by evolutionary forces. Evidence in the recent literature indicates that status concerns stemming from marriage market competition are also important for other dimensions of individual consumption and investment decisions. In particular, variation in sex ratios, which determine the intensity of competition among males and females, appears to induce variation in the propensity to invest in human and physical capital. Charles and Luoh (2010) exploit the differences in male incarceration rates in the U.S. to identify the effect of marriage market competition on female schooling and labor supply, while Wei and Zhang (2011a) and Wei and Zhang (2011b) use variation in gender imbalances (i.e., the relative number of males to females in the population) across provinces of China to argue that they result in higher savings, greater investment rates, and more economic growth, consistent with the predictions of endogenous status models. Du and Wei (2010) and Du and Wei (2011) use a quantitative model to show that the unbalanced sex ratios in China could also drive its current account surpluses and real exchange rates.

The paper proceeds as follows: Section 1 develops a model of marriage market matching and risk-taking; Section 2 describes our data; Section 3 presents our results using a direct measure of marital status; Section 4 introduces an instrument for CEO marital status; and Section 5 concludes.

1 Model

In this section we present a model of matching in the marriage market and investment in order to highlight the interaction between matching-induced status concerns and risk-taking. The model builds on Cole, Mailath, and Postlewaite (1992) and Cole, Mailath, and Postlewaite (2001), who show that competition for mates can induce a concern for relative position even if it does not directly enter individuals' preferences. In our model, such relative wealth concerns can lead to a greater tolerance for risk (e.g., Robson (1992), Becker, Murphy, and Werning (2005)), and especially idiosyncratic risk, as emphasized by Roussanov (2010a). The intuition is that competition for mates is akin to an arms race: insofar as potential spouses prefer wealthier suitors, what matters for attaining a spouse of a higher "quality" is how much wealth one has relative to competitors (as long as the notion of spouse quality is the same for everyone). If attaining a higher quality spouse raises one's marginal utility of wealth, then the desire to "get ahead of the Joneses" overcomes risk aversion and leads to greater risk-taking than if matching concerns were absent.

1.1 Environment

There is a continuum of agents of two types: set M (indexed by i) of males and set F (indexed by j) of females, each of measure one.[4] Each agent derives utility from a market good c and a non-market good s:

$$u(c, s) \ = s \log (1 + c)$$

Females are endowed with f_j units of the non-market good, distributed according to c.d.f. H on $(0, \infty)$. At the beginning of the period, each male is endowed with $W_0 > 0$ units of a capital good. This good can be converted into the market good at the end of the period by investing it in a combination of two linear technologies: riskless storage at rate R^f and agent-specific risky investment that earns a stochastic rate of return R^i. The market "wealth" of each male at the end of the period is then

$$W^i = W_o \left(R^f + \theta^i (R^i - R^f) \right), \tag{1}$$

where θ^i is the share of initial wealth invested in the risky technology by (male) agent i, subject to the constraint that $W^i > 0$ (this constraint ensures that $c > 0$ and, consequently, utility is always increasing in the non-market good). Risky returns R^i are distributed independently and identically across agents with a c.d.f. Φ on $A = [R_{\min}, \infty)$.[5] Let the percentile

[4]We use these labels just for convenience. There is nothing in our model (or in our empirical tests) that requires the two groups to have biological characteristics of their respective sexes.

[5]The assumption of independence is not critical; what is important is that the agent-specific investment opportunities contain some purely idiosyncratic risk so that they are not perfectly correlated across managers.

rank of male i in the resulting equilibrium distribution of end-of-period wealth be denoted $G(W^i)$.[6]

A male and a female jointly consume each good, having matched; i.e., if a male i matches with a female j, each of them receives utility $u(W^i, f_j)$ at the end of the period. A subset M_M having total measure $\lambda_M \in (0,1)$ of males, and a set F_M of the same measure of females, drawn randomly and independently from their respective distributions, are permanently matched at the beginning of the period. This is meant to capture the idea that people may find their marriage partners early in life, before their investment payoffs are realized. Since all males are ex ante identical while the females are not, they are matched randomly. The remaining subsets M_U of males and F_U of females enter the matching market at the end of the period, after W^i are realized. Since utility is increasing in both arguments for both males and females, and the two goods are complements, the only stable matching (in the sense of Roth and Sotomayor (1990)) is positively assortative (in W and f, respectively), so that the matched male i and female j have the same percentile rank in the respective distributions:

$$G\left(W^i\right) = H\left(f_j\right).$$

Therefore, the equilibrium allocations depend only on the relative status of the males after the realization of uncertainty about the investment projects. The equilibrium matching function produces a pairing

$$s^i = f_j$$

such that

$$s^i = H^{-1}\left(G\left(W^i\right)\right) = S\left(W^i\right).$$

Thus, at the beginning of the period, each unmatched male solves

$$\max_\theta E\left[S\left(W^i\right)\log\left(1+W^i\right)\right], \tag{2}$$

where W^i is subject to the resource constraint (1) above, and taking the equilibrium status

[6] The assumption that only males have access to an investment technology is meant to simplify exposition. One could instead consider a symmetric setting where both "males" and "females" face the same problem.

function $S(W^i)$ as given. Each exogenously matched male solves

$$\max_{\theta} E\left[s^i \log\left(1+W^i\right)\right], \tag{3}$$

subject to the same resource constraint (1), where s^i is the endowment of the female that the male i was randomly matched with at the beginning of the period.

1.2 Equilibrium

We focus on a symmetric equilibrium: a solution θ^i to the problem (2) such that $\theta^i = \bar{\theta}$ for all $i \in M_U$. Since the decisions of matched males solving (3) are neither influenced by nor have an impact on the decisions of other males, they can be omitted from the description of the equilibrium: there is an θ_M such that $\theta^i = \theta_M$ is satisfied trivially for all $i \in M_M$.

In the symmetric equilibrium, the status matching given by the equilibrium distribution of end-of-period wealth is a function of one's own choice θ^i and the choice of all other agents $\bar{\theta}$ (taken by agent i as given). In this symmetric equilibrium, the wealth distribution inherits the properties of the probability distribution of risky asset returns, since

$$G(W) = \Pr\left[W^i \leq W\right] = \Phi\left(\frac{W/W_o - \left(1-\bar{\theta}\right) R^f}{\bar{\theta}}\right).$$

Assume that the status function $S(W^i)$ is continuously differentiable. Then the first-order condition for the individual investment problem by the unmarried male is

$$E\left[R^{ix}\left(\frac{S(W^i)}{1+W^i} + \log\left(1+W^i\right) S'\left(W^i\right)\right)\right] = 0,$$

where $R^{ix} = R^i - R^f$.

For those males whose marriage matches are assigned permanently at time 0, there is no interaction between investment and matching concerns, and therefore s^i is orthogonal to W^i. Then the first-order condition for the problem (3) of a married male is the standard Euler equation:

$$E\left[\frac{R^{ix}}{1+W_M^i}\right]=0, \tag{4}$$

where W_M^i is the end-of-period value of the wealth portfolio optimally chosen by agent $i \in M_M$ (married at the beginning of the period).

For the males who are active in the matching market at the end of the period, we can write (1.2) as

$$\begin{aligned} 0 &= E\left[R^{ix}\left(\frac{S\left(W^i\right)}{1+W^i}\right)\right]+E\left[R^{ix}\log\left(1+W^i\right)S'\left(W^i\right)\right] \\ &= Cov\left(\frac{R^{ix}}{1+W^i},S\left(W^i\right)\right)+E\left[\frac{R^{ix}}{1+W^i}\right]E\left[S\left(W^i\right)\right] \\ &\quad +Cov\left(R^{ix}\log\left(1+W^i\right),S'\left(W^i\right)\right)+E\left[R^{ix}\log\left(1+W^i\right)\right]E\left[S'\left(W^i\right)\right], \end{aligned}$$

so that

$$E\left[\frac{R^{ix}}{1+W^i}\right]=-\frac{1}{E\left[S\left(W^i\right)\right]}\left[\begin{array}{c} Cov\left(\frac{R^{ix}}{1+W^i},S\left(W^i\right)\right)+Cov\left(R^{ix}\log\left(1+W^i\right),S'\left(W^i\right)\right) \\ +E\left[R^{ix}\log\left(1+W^i\right)\right]E\left[S'\left(W^i\right)\right] \end{array}\right]. \tag{5}$$

Suppose the status function is linear:

$$s^i=S\left(W^i\right)=\alpha W^i, \tag{6}$$

so that $S'\left(W^i\right)=\alpha$ is a (positive) constant and $Cov\left(R^{ix}\log\left(1+W^i\right),S'\left(W^i\right)\right)=0$. Then (5) implies

$$E\left[\frac{R^{ix}}{1+W^i}\right]=-\frac{1}{E\left[S\left(W^i\right)\right]}\left[Cov\left(\frac{R^{ix}}{1+W^i},S\left(W^i\right)\right)+E\left[R^{ix}\log\left(1+W^i\right)\right]E\left[S'\left(W^i\right)\right]\right].$$

Consequently, for single males this Euler equation implies an inequality

$$E\left[\frac{R^{ix}}{1+W_U^i}\right]<0 \tag{7}$$

that must satisfied by the optimal wealth portfolios W_U^i for all $i \in M_U$ (unmarried at the beginning of period). By comparison with the Euler equation (4), this inequality states that the expected excess return on the idiosyncratic risky project, risk-adjusted using the stochastic discount factor of a married investor evaluated at the optimal wealth of a single investor, is negative. That is, the single investor's optimal portfolio exhibits a higher allocation to the idiosyncratic asset than that optimally chosen by the married agent. In other word, agents who are active in the marriage market invest more in the idiosyncratic risky project than those who are married at the beginning of period.

What is the mechanism behind this result? If the idiosyncratic project enjoys a high return, this not only raises the wealth (and therefore consumption) of the agent, but also increases the equilibrium quality of his match, since the wealth of other agents is unaffected, and so it is easier for him to beat the competition. Thus, $S(W^i)$ increases, which in turn raises the marginal utility of consumption. Since wealth becomes relatively more valuable in the high R^i state, this idiosyncratic asset is less risky from the perspective of an agent who is active in the marriage market than it is from the perspective of an exogenously-matched agent, who does not care about relative position. If the risky asset realization was common to all agents, however, this effect would not arise. Since all males are ex ante identical, a higher return on the common asset does not alter their relative positions and hence has no impact on status and, consequently, match quality.

1.3 Special cases and extensions

The model prediction above was derived under the simplifying assumption (6), which states that the reduced form equilibrium status/matching function is linear in male agent's wealth. Under what conditions is the status function linear? The following simple examples provide sufficient conditions:

1. female good is distributed uniformly on $[f_{\min}, f_{\max}]$ and the equilibrium distribution of wealth is uniform (which is the case if R^{ix} is uniformly distributed on $[R_{\min}, R_{\max}]$);

2. the distribution of the female non-market good coincides with the equilibrium distribution of male wealth, $H(x) = G(x)$ for all x; this situation is relevant also if the

problem is completely symmetric, i.e. the females face an investment problem identical to that faced by the males.

What if S is not linear? Then the sign of $Cov\left(R^{ix}\log\left(1+W^{i}\right), G'\left(W^{i}\right)\right)$ is ambiguous and depends on the shape of the status/matching function S, which, in turn, depends on the equilibrium distribution of wealth G. In particular, if S is convex, the latter covariance is negative and the same conclusion as above holds. However, if S is concave, the conclusion is ambiguous and potentially depends on the specific parameterization of the model.

The feature of the model that yields the prediction of greater risk-taking by single managers under a broad set of conditions is the complementarity between the male and the female good (i.e., the fact that $u_{cs} > 0$). This feature is intuitive: a higher quality spouse raises one's own marginal utility of consumption. For example, a spouse with a higher level of "sophistication" may influence one's tastes in a direction that demands purchase of more expensive consumption goods.

The complementarity assumption is not crucial. For example, Cole, Mailath, and Postlewaite (2001) consider a setting in which utility is separable in the market and non-market good, and show that if the status/matching payoff is convex in market wealth, the same result as here obtains (agents take more idiosyncratic risk than in the absence of matching). However, if utility is sufficiently concave over the non-market good, the opposite prediction obtains - the agents "herd" towards common projects (Roussanov (2010b) describes in detail the conditions under which these predictions hold).

A model can be easily generalized to accommodate other margins that have an effect on wealth accumulation, such as a choice of effort vs. leisure or intertemporal consumption-saving decisions. Since the status payoff that comes from the marriage market competition provides an additional benefit of wealth, the key prediction of the model carries over under fairly general conditions: unmarried individuals invest more than married ones. This is because the relative position concerns induced by matching are a form of an arms race: single individuals competing for mates are lead to accumulate more resources than they would for consumption purposes alone.

1.4 Discussion of Implications

We show that under a set of plausible conditions individuals who expect to compete in the market for mates exhibit greater risk-taking than those who do not, including those who are already matched. We aim to test this prediction of the model by analyzing differences in risk-taking between single and married managers. The intuition is that for single individuals marriage market competition is more acute than for those already married (even if the matches are not expected to be permanent, as long as divorce and re-matching are costly). The model is deliberately simple in that it compares people who make investment decisions before competing in the marriage market to those who invest after being exogenously matched. The way to interpret this assumption is that the probability of being married at a given point in time depends on luck (e.g., in meeting a suitable partner) as well as relative wealth.

2 Data

2.1 CEO Characteristics

We collect the names, biographical information, and compensation of all CEOs covered by ExecuComp in the 1993-2008 period. We then research their marital and family status using a variety of public sources, such as the *Marquis Who's Is Who in Finance and Industry*, the SEC insider filings, and various media mentions. The ultimate goal of this effort is to establish whether a particular CEO was married or single during his tenure. Our approach is to start with the assumption that all CEOs are single, and then change their status if we find information indicating the opposite. Given that we can find the actual marriage dates only for an extremely small minority of CEOs, any CEO who is ever mentioned as being married is coded as married throughout his or her tenure. This means that some CEOs who were divorced or whose spouses were deceased will be wrongly counted as married. However, there also exists an offsetting bias. Since we require evidence to classify a CEO as married, those CEOs who are not prominent enough to warrant mention in our sources (or those who are very private with regards to their personal information) will appear in the data as single even if they are actually married. While we try to perform a comprehensive search for all CEOs, it is inevitable that we will miss some. Furthermore, some CEOs may be involved in marriage-like relationships but not formally married, and their status for our purposes should be classified as married but will not be.

The net effect of these biases cannot be determined with much certainty, but we are hopeful our data is not too unrepresentative. Table 2 shows that in terms of CEO-year observations married CEOs account for 84% of our sample. If we just consider each individual CEO, single ones make up 20% of our sample. According to the U.S. Census data, 70% of men in the 35-59 age range were married in 2000. This group represents most of the CEOs in our sample, so it would appear that we overestimate the number of currently married CEOs.[7] But CEOs are also much wealthier than typical Americans, and wealth may be positively correlated with the probability of being married.

In order to confirm that the proportion of single CEOs in our data is reasonable, we use data from the Survey of Consumer Finances (SCF) for the year 2001, which is roughly in the middle of our sample period. SCF oversamples wealthy households, and therefore is more likely than the Census to accurately capture the demographic to which the CEOs in our sample belong. We estimate a logistic regression predicting that the head of household in the SCF is single using the following specification:

$$\Pr\left(Single\right) = \Phi\left(\alpha + \beta \times Wealth + \gamma \times Income + \delta \times Age + \zeta \times \frac{Age^2}{100}\right), \qquad (8)$$

where $Single$ is a dummy variable that equals one if the head is unmarried, Age is the head's age, $Income$ is the annual household income, and $Wealth$ is a measure of household wealth. We use two wealth measures: one is the total household net worth (total assets minus total liabilities), and the other is the value of holdings concentrated in the single largest risky asset. The latter wealth variable (see Roussanov (2010b) for details on its construction) is meant to mimic our proxy for CEO wealth, which is based on holdings of own-company stock and options. We do not use SCF population weights, which are supposed to address the issue of

[7] At the same time, we may be underestimating the proportion of CEOs who were married at any point in time (though not necessarily during their tenure). In the Census data, of the men falling in the 1950-1954 birth cohort, 89% had been married at some point before reaching the age of 50.

oversampling of wealthy households, as we are interested in capturing the relation precisely for such households rather than the U.S. population as a whole.

Table 1 presents the regression results, together with the implied probability of being single computed for the median CEO in our sample. This probability is calculated based on the median CEO wealth of $13.8 million, median annual CEO compensation of $2.2 million, and median CEO age of 55 years. The implied probabilities for various specifications fall in the 11 to 20% range, which is not too far from the proportion of CEOs we classify as single in our sample. Consequently, we conclude that our measure of marital status is reasonably accurate, at least in the sense that we do not greatly overestimate or underestimate the number of unmarried CEOs.

While there is a number of CEOs who are divorced in our sample, we do not explicitly consider divorced CEOs 'single', as it is not obvious from the perspective of our model that we should. Divorce is not an exogenous shock that simply changes an individual's marital status. It is actually a result of a decision by one (or both) spouses that takes into account the value of re-entering the marriage market. In particular, the CEO's decision prior to divorce may take into account the matching considerations arising from a potential re-marriage. For example, if a CEO's wealth has increased enough since marriage, the prospect of improving the marital match may increase risk-taking prior (and potentially leading) to divorce. On the other hand, even if divorce is costly, if a CEO's wealth falls enough, the spouse may prefer to terminate the marriage and seek a better match in the re-marriage market, which will reduce the CEO's risk tolerance after marrying.

If we wrongly characterized marital status of some CEOs, this would not constitute a problem for our analysis, as long as this effect was uncorrelated with anything else. The problem is that this may not be true for CEOs who are married, with no public information documenting their status. Such CEOs are likely to be less prominent than their peers and could potentially be associated with younger, riskier firms. This effect may explain risk-taking attitudes of managers we classify as 'single', without any actual effect of marital status. For example, Malmendier and Tate (2009) find that "superstar" CEOs exhibit different behaviors than their less prominent counterparts. This may represent a serious problem for our analysis, which we address in several ways.[8]

First, in our regressions we use as controls observable measures that are likely to be correlated with both the degree of prominence of a company and its riskiness, such as firm size, market-to-book ratio, and age. Second, we explicitly control for the effect of prominence on our classification of CEOs as married or single by constructing measures of frequency of CEO and company media mentions. Specifically, we use *Factiva Dow Jones* database to count the number of news stories mentioning the CEO and/or the company associated with each of the observations during our sample period. We use these measures to control for the effect of prominence on risk-taking in our analysis. While these controls do appear to capture some variation in firm risk, their inclusion does not affect our results.

2.2 Other Control Variables

We augment our CEO data set with data from COMPUSTAT and CRSP, which we use to construct measures of corporate risk-taking and the necessary control variables. The various variables we use are defined below (all numbers except ratios are in millions).[9]

Total investment ($Investment$) is capital expenditures ($CapEx$) plus acquisitions minus asset sales ($Net\ Acquisitions$) plus R&D expenditure ($R\&D$) plus advertising expenditure ($Advert.$), scaled by net property, plant & equipment ($PP\&E$). This is a more comprehensive measure than used in most of the literature, but we believe R&D and advertising expenditures should be counted as investment for our purposes, as they do reflect a firm's risk-taking (Guay (1999) uses R&D expenditure as a proxy for CEO risk-taking). We also consider the individual components of investment separately (scaled by $PP\&E$). Total volatility is computed as the annualized volatility of a firm's monthly stock returns over the previous year. Idiosyncratic volatility is calculated as the annual volatility of the residuals of the firm's stock returns regressed on the CRSP value-weighted stock market portfolio return.

Firm size ($\log A$) is the log of its total assets. Book equity (BE) equals stockholders'

[8]Such "superstar status" itself could be viewed as a type of status payoff that could induce risk-taking. Shemesh (2010) presents some evidence that achieving this status leads CEOs to reduce subsequent risk-taking.

[9]We include in our sample all firms for which we have the necessary data. Our results continue to hold if we exclude financial firms.

equity; if that item is missing in COMPUSTAT, then it is common equity plus preferred equity; and if those items are unavailable as well, then it is total assets minus total liabilities. Market-to-book ratio (M/B) is the ratio of the market value of assets relative to their book value, where the market value of assets is the total value of assets minus book value of equity plus market value of equity. Cash flow (CF) equals earnings before extraordinary items plus depreciation & amortization, scaled by net $PP\&E$. Book leverage ($Leverage$) equals the sum of long-term and current debt divided by the sum of long-term debt, current debt, and book equity. Firm age is computed with respect to the first year it appears in COMPUSTAT. All firm-related variables (except size and book equity) are winsorized at the 1% and 99% levels.

We also use information available in ExecuComp on the relevant characteristics of managers. CEO wealth ($\log wealth$) is the log of CEO's total holdings of own company stock and options, which we use as a proxy for total CEO wealth. Age and $Tenure$ are the CEO's age and his tenure with the firm, as of the current year. The *Factiva*-based measures of CEO and firm prominence are each defined as the logarithm of the total number of their media mentions during our sample period. For CEOs, we only count news stories that are explicitly related to the firm they run, in order to avoid greatly exaggerating the prominence of CEOs with common names.

3 CEO Marital Status and Risk-Taking

3.1 Overview

Table 2 presents the main summary statistics for our data, grouping firms based on the marital status of their CEOs. It confirms that our classification produces intuitive results: married CEOs are on average somewhat older and, consistent with the theory that relates marital market competition with wealth, richer (insofar as we can proxy their wealth with the value of their holdings of the company's stock and options). This first look at the data also supports our main hypothesis: firms managed by CEOs whom we classify as single display markedly different characteristics. Such firms have higher investment and experience greater return volatility, both of which measures should be related to the amount of risk associated with a firm. The differences are highly significant, both economically and statistically. Return volatility of single CEO firms is 24% higher, and a t-test for the difference produces a t-statistic of about 14 (untabulated). Investment is 69% higher for such firms relative to those run by married CEOs, with a t-statistic of 13 for the difference.

These differences appear to be quite dramatic, but single CEO-run firms are also on average smaller, younger, and potentially faster-growing, as indicated by their higher market-to-book ratios. Since both small and growth firms tend to invest more and have more volatile returns, it is important to control for these characteristics. We therefore run a variety of regression specifications with investment and return volatility as independent variables:

$$RiskTaking = \alpha + \beta \times Single + \gamma \times X + \delta \times Y + \zeta \times (Single \times \tilde{Y}), \qquad (9)$$

where $RiskTaking$ is our measure of risk-taking, $Single$ is a dummy variable equaling one if the CEO is unmarried and zero otherwise, X is a set of firm characteristics, and Y is a set of CEO characteristics (the specific variable definitions are given above), and $\tilde{Y}$ are the same characteristics that have been demeaned. All our regressions also include industry (based on the Fama-French 49-industry classification) and year fixed effects. We computed t-statistics using clustered standard errors (by firm).

3.2 Firm Investment

Tables 3, 4, and 5 present regression results for various forms of firm investment (total investment, net acquisitions, and R&D plus advertising expenditure, respectively). The coefficient of most interest is the dummy variable *Single*.

Column 1 of Table 3 shows that the coefficient is positive and statistically significant (t-stat=2.35). Its magnitude suggests an economically meaningful effect of marital status: single CEOs invest 0.09 more than their married counterparts (relative to the sample mean of 1.00). In this specification, we control just for different firm characteristics that are known to be correlated with investment. The coefficients on these controls are all the same as documented in previous work. Firms with high cash flows, growth firms, small firms, and firms with high past investment tend to invest more.[10] These are well-known correlations, and the fact they hold in our sample reassures us that it is not much different than those used in other studies.

Since married and single CEOs also have different personal characteristics, in column 2 we add controls for CEO characteristics, such as age and tenure, and the interactions between those characteristics and the single status dummy variable (characteristics variables in the interaction terms are always demeaned). Both age and tenure are significantly negatively related to investment. Older CEOs tend to be more conservative, which is also consistent with the relevance of positional concerns declining with age.[11] This means we need to control for these CEO characteristics, as they are also correlated with the probability of being married. For example, older CEOs may invest more cautiously and are more likely to be married, which would confound the effect of marital status if appropriate controls are not included.

The inclusion of these variables reduces the *Single* coefficient somewhat, but it remains statistically significant (t-stat=1.71). And its magnitude still indicates a large effect: a firm with a single 45-year old CEO with a tenure of five years will have investment that is on average 0.26 higher than that of the same firm with a married CEO, while the sample mean for firms with married CEOs is 0.90. In other words, investment of such firms is 29% higher, which is a very substantial economic difference.

Interestingly, the interaction coefficient between *Single* and *Age* is negative, which means that the impact of marital status on investment is less important for older CEOs. This is consistent with the basic motivation underlying our study. If single CEOs indeed choose to invest more because they are less risk-averse due to their competing in the marriage market, we would expect this tendency to be less pronounced for older CEOs. This interaction between age and marital status also suggests that the driving force behind our results may not be purely a selection effect, whereby CEOs who prefer to stay single are fundamentally different (e.g., in terms of their risk attitudes) from those who marry. If that were the case, then the effect of marital status would be less likely to decrease with age. In fact, it would

[10]Our results do not change if we use investment during the previous CEO's tenure as a control instead of lagged investment.

[11]Levi, Li, and Zhang (2010) document more aggressive deal-making behavior among younger CEOs, and argue that it is driven by their higher testosterone levels.

likely increase, as at older ages the single group would be predominantly populated by people with particularly strong "aversion" to marriage.

In column 3, we introduce our controls for CEO and firm prominence. The coefficient on CEO prominence is large and significant (t-stat=3.83), which is consistent with previous work. Our main finding that single CEOs invest more remains unaltered. In fact, it turns out that the effect of prominence, if anything, works against us, since it is the CEOs of riskier firms who appear to have higher rates of media mentions, and are therefore less likely to be mistakenly classified as single. Consequently, the *Single* coefficient actually becomes even larger, with a higher statistical significance.

In column 4, we add as a control institutional holdings of company stock, obtained from Thomson Reuters database of 13f filings. We use institutional holdings as a proxy for the quality of a firm's corporate governance, under the assumption that firms with higher institutional ownership will be more responsive to shareholders. We introduce this variable to test whether greater shareholder control attenuates the effect of marital status, perhaps by making it harder for single CEOs to undertake overly risky investments. However, while the institutional holdings coefficient is positive and significant, the coefficient on the interaction term between holdings and *Single* is not significant, and our findings remain the same as before.

Our results do not change if we add controls for firm region, or if we use a different industry classification scheme.[12] They also are stronger if we focus just on R&D and advertising expenditures (Table 5), which arguably capture firm risk-taking more accurately, as they are commonly perceived as representing especially risky activities. The results are somewhat weaker for Net Acquisitions (Table 4), likely due to the fact that a lot of smaller firms do not make any acquisitions.

As mentioned before, we are not taking a stand in this paper on whether CEOs alter firm decisions to meet their own objectives or are just matched to firms along all their relevant characteristics. In order to explore how much of a role CEO-firm matching plays, in the last column we omit any firm characteristics from our regressions. Consequently, we are comparing single and married CEOs just controlling for their personal characteristics.

[12] Those results are available upon request.

Under that specification, the *Single* coefficient for Total Investment grows dramatically to 0.45 (from 0.09), with a t-statistic of 5.23, and even the coefficient for Net Acquisitions is statistically significant with a t-statistic of 2.59 (Table 4). These findings suggest that riskier firms are strongly associated with single CEOs, perhaps because these CEOs are more willing to accept risks. However, even if we control for this selection effect (in columns 1-4), single CEOs still assume greater risks than married ones. Results in column 4 are probably the most conservative estimate of the difference between married and single CEOs, to the extent that our (potentially imperfect) controls capture all of the relevant firm characteristics, whereas those in column 5 represent the most aggressive estimate.

3.3 Stock Return Volatility

In Table 6, we repeat the same analysis for total stock return volatility, and find that firms run by single CEOs exhibit more volatile returns. This difference is statistically (t-stat=2.30 in column 4) and economically meaningful, with the coefficient magnitude suggesting about a 3% difference.[13] All the firm-level control variables have the expected effect: firms with low cash flows, firms with high market-to-book ratios, small firms, firms with high leverage, and young firms have more volatile stock returns. CEO age has a negative effect on return volatility, while CEO prominence has a positive effect, both of which results are consistent with those in the previous section. Unlike for investment, the *Single* and *Age* interaction term is not significant, though the coefficient does always have a negative sign.

If we exclude controls for firm characteristics, the results become much stronger: return volatility of firms run by single CEOs is 16% higher, and the t-statistic for the difference is 7.83. As with firm investment, it seems that single CEOs are more commonly matched with riskier firms, but undertake more risks even when we control for this tendency. Our findings hold (and are actually stronger) for idiosyncratic volatility, consistent with the model's predictions that center on idiosyncratic rather than systematic risk. These findings are presented in Table 7.

[13]Computed as 0.012 (*Single* coefficient magnitude) divided by 0.370 (mean return volatility for firms run by married CEOs).

3.4 Discussion

Our results support the hypothesis that single CEOs assume more risk than married ones. This is consistent with our model of CEO status-seeking that is motivated by the desire to find a suitable marriage partner and the resulting competition in the marriage market.

Of course, it is possible that single managers exhibit different risk-taking behavior from married managers even absent status concerns. People who are single at a given age may be inherently more risk-tolerant than those who are married by the same age. It would be possible to distinguish this scenario from our theory by exploiting changes in managers' marital status over time. Unfortunately, this would require a significant number of CEOs to experience marital status changes during their tenure, and for us to be able to document such a transition. Moreover, we would need to have precise dates of these marital transitions, which are difficult to obtain.[14] Thus we cannot convincingly distinguish our hypothesis from the alternative one that single and married CEOs are simply different using within-manager variation. Instead, in order to rule out the hypothesis of innate heterogeneity, we employ an instrumental variables approach described in the following section.

Another possibility is that marriage changes the utility of wealth by introducing spousal preferences into the CEO's objective function. For example, a CEO who has to support a spouse and children may have a higher required level of consumption expenditure and therefore income. This would make married CEOs effectively more risk-averse than single ones for reasons that have nothing to do with status. However, it seems likely that most, if not all, CEOs are wealthy enough for such concerns to be of second-order importance. At the same time, the impact of status concerns should be particularly pronounced in the upper tail of the wealth distribution.

[14]We are able to find 76 CEOs in our sample who became married during their tenure, but for many of those the marital status change occurred right after they became CEO or shortly before them stepping down (thus not allowing a proper comparison of managerial decisions before and after marriage).

4 Instrumental Variables Approach: Divorce Costs

4.1 Community Property vs. Equitable Division

While some of the variation in CEOs' marital status is likely driven by their luck in finding a suitable marriage partner, some variation is likely due to the perceived costs of getting married. In particular, a nontrivial fraction of marriages, including those of CEOs, end in divorce. Since divorce is costly, this possibility should have an effect on an individual's propensity to enter into a marriage in the first place. For a wealthy person, a major concern is the division of property upon dissolution of a marriage. In the U.S., the division of marital assets upon divorce is regulated at the state level. Consequently, we can exploit the variation in the divorce laws across states of CEOs' residences, as it is plausibly exogenous both to the match between a firm and a CEO and to the firms' investment policies.

The most salient aspect of heterogeneity in the laws guiding the division of marital property is the distinction between *community property* and *equitable division*. The former mandates equal division of all assets acquired during marriage between the two spouses upon divorce, whereas the latter follows the common law practice allowing the division to be determined by a judge based on a range of factors, including the relative contributions of the spouses. It is commonly understood that community property is more advantageous for the poorer spouse (see Voena (2011)). Since CEOs are typically substantially wealthier than their spouses, equal division of assets mandated by community property laws makes marriage costlier for them (insofar as there is a positive probability of its dissolution).

There are nine states in the U.S. that have adopted the community property system: Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington, and Wisconsin.[15] While community property legislation was adopted by these states at different points in time, it was in place in all of them throughout the period covered by our sample. Thus, there is little concern that political economy considerations could create an endogeneity problem, since it is highly unlikely that the passage of laws regulating divorce is systematically related to firms' investment opportunities and risk decades later. It is interesting to note that the use of the community property standard is not obviously related to (current)

[15] Puerto Rico is also a community property jurisdiction.

state characteristics. It is present in both rich and poor states, in large and small ones, as well as those whose populations' political preferences tend to be either predominantly liberal or predominantly conservative.

Although we do not directly observe the state of CEO residence, we can use the state in which the firm is headquartered as a reasonably good proxy for which type of jurisdiction is more relevant for the CEO.[16] While the number of community property jurisdictions is small, it includes some of the most populous states in the U.S., and thus represents approximately 36% of our sample of CEOs.

A potential issue is that prospective CEOs who are married may choose to reside in certain states because their divorce laws are more friendly to wealthy individuals. The market for CEOs in states where divorce is more costly would then have a relatively greater supply of potential CEOs who are single. If these CEOs are also more innately risk-tolerant on average, this could represent a problem for our instrument. However, given that the labor market for CEOs of public companies is likely nation-wide, this would require divorce laws to be a significant factor in determining where potential CEOs seek employment, which we believe is not plausible. What our instrument relies on is the assumption that a state's legal regime can influence a single CEO's decision whether to get married at a given point in time. More specifically, a CEO who is currently single and resides in a community property state is more likely to postpone marriage, holding all else equal.

Prenuptial agreements may limit the extent to which community property statutes impose a cost on wealthy individuals who marry less wealthy spouses. However, even among the wealthy their adoption is by no means universal. Moreover, enforcement of premarital agreement by the courts may not have been uniform over our sample period.[17] To the extent that such agreements decrease the impact of state laws on the cost of divorce, and therefore on the probability of a single CEO getting married, this would only attenuate our first-stage estimates of the effect of community property states on CEO marital status, and consequently

[16] Although a number of CEOs of companies headquartered in New York City reside in Connecticut or New Jersey, both of these are also equitable distribution states, and so there is no error due to misclassification for these CEOs.

[17] A recent example of a prenuptial agreement not upheld by the legal system in a community property jurisdiction is the high-profile divorce between Frank and Jamie McCourt (http://www.avvo.com/legal-guides/ugc/judge-tosses-out-prenup-dodgers-ownership-still-undecided).

weaken the statistical power of the instrument in the second stage. Mismeasurement of the relevant jurisdiction would have a similar effect, weakening our results.

As a way of validating our instrumental variable approach externally to address some of these concerns, we analyze data from the entire U.S. population collected by the U.S. Census Bureau. The idea behind our instrument is that wealthier individuals are deterred from marriage (i.e., are more likely to be single, *ceteris paribus*), if they reside in a community property state. Thus, we test whether an additional interaction between measures of wealth/income and community property residence is positive, using the data from the 2000 U.S. Census 5% sample from the Integrated Public Use Microdata Series (IPUMS). Census does not collect data on wealth, therefore we can only use data on personal income of the head of household. Since current income is a noisy measure of lifetime income, especially for younger people, we also use data on occupation of the head of household in order to identify individuals who are likely to accumulate substantial wealth over time. In particular, we identify individuals with occupation codes "Lawyers" and "Surgeons and physicians." Finally, as an additional measure that is closest to our focus on corporate CEOs, we separately identify individuals with occupation code "Chief executives."[18] We use two measures of single marital status: a narrow measure that includes only people reporting to have never been married, and a broad measure that includes those who never married as well as those who report their current marital status as either divorced or widowed. All of the regressions controlling for a quadratic in age to capture life-cycle effects.

Table 8 presents the results of these tests. The general regression specification is

$$Single = \alpha + \beta \times Comm + \gamma \times Income + \delta \times Age + \zeta \times \frac{Age^2}{100} + \eta \times Occ + \chi \times \widetilde{Income} \times Comm + \kappa \times \widetilde{Occ} \times Comm, \quad (10)$$

where $Comm$ is the dummy variable equal to one if the household's state of residence is a community property state. $Single$ is a dummy variable equal to one if the head of household has never been married (specification 1) or has never been married, is divorced, or is widowed (specifications 2-4). $Income$ is in millions. Occ is a dummy variable for whether the head of household is either a lawyer or a surgeon/physician by occupation (specification 3) or a chief

[18]This category is likely to include CEOs of privately held firms as well as, potentially, heads of nonprofit organizations. The number of public-company CEOs in this sample is likely to be small, given the small number of publicly listed companies relative to the total number of firms in the U.S.

executive (specification 4). The interacted variables $\widetilde{Income}$ and $\widetilde{Occ}$ are demeaned using population weights. Consistent with our results using SCF data in Table 1, higher income individuals are less likely to be single, as are older individuals (albeit the effect of age is nonlinear).

In accordance with our hypothesis that higher-income individuals are less likely to be married if they reside in a community property jurisdiction, the interaction of income with the community property dummy is positive and highly statistically significant (with t-statistics around 10), regardless of which definition of single status is used. This occurs despite the fact that the effect of community property itself is actually negative (and significant, with t-statistics between 4 and 6). The effect of the community property regime on marriage rates in the general population can depend on a number of factors, such as the difference in income distribution or religious composition between the equitable distribution and community property states. However, this does not have an effect on the validity of our instrument. What matters is whether community property standard has a differential impact on the decisions of wealthy individuals, and whether it makes it less likely for such individuals to get married.

Similarly to the results above, the interaction of a dummy for high-income occupations (doctors and lawyers) with the community property dummy is also positive and statistically significant (specification 3). The interaction of a CEO dummy with the community property dummy is also positive but not quite statistically significant, likely due to the fact that many individuals reporting "Chief executive" as their occupation are not actually sufficiently wealthy to be concerned about property division in divorce. We conclude that the effect of residing in a community property state on marital status is concentrated among the wealthier individuals, which validates the use of community property jurisdiction as a useful instrument for CEO single status, as well as alleviates concerns that this variable might be exclusively capturing unobserved heterogeneity across states.

4.2 Instrumental Variable Results

In the first stage, we regress the (potentially) endogenous variable *Single* on the instrumental variable, *Community*, which equals one if the firm is headquartered in one of the community property states and zero otherwise, as well as all of the control variables that we use. Our specification is as follows:

$$Single = \alpha + \beta \times Community + \gamma \times X + \delta \times Y, \tag{11}$$

where X is a set of firm characteristics and Y is a set of CEO characteristics. We also include industry and year fixed effects, which we do not tabulate.

Table 9 reports the estimated coefficients. In accordance with our hypothesis, $Community$ has a highly significant effect on the probability of a CEO being single, controlling for all of the firm and CEO characteristics (including, in particular, CEO age and wealth, which both have predictably negative effects). Thus, variation in divorce laws represents a useful instrument for CEO marital status, and in fact a rather strong one, as suggested by t-statistics between 3.25 and 4.41 (calculated using robust standard errors clustered at state level). A CEO residing in a community property state is 4.9% more likely to be single relative to the unconditional probability of 16.2%.

We then repeat the regressions for firm investment and return volatility (given by Eq. (9)) using a two-stage least squares approach, where we substitute the fitted value from the first stage regression described above, $SinglePred$, for the endogenous variable $Single$. We report the results for our two main dependent variables: total firm investment and idiosyncratic volatility.

Table 10 reports the second stage regression results for total investment, following the same specifications as in Table 3. The effect of the instrumented variable, $SinglePred$, is strong and statistically significant, with t-statistics between 1.88 and 2.99. The inclusion of controls does not have much effect on the coefficient's magnitude, which is always between 2.1 and 2.4., except when all of the firm-level controls are dropped. One way to examine the coefficient's economic significance is in terms of standard deviation changes, since this is a continuous rather than a binary variable. A one-standard deviation increase (decrease) in $SinglePred$ results in a 0.25 increase (decrease) in total investment, which is a very meaningful effect given that the sample mean is 1.00.[19]

Table 11 presents analogous results for the idiosyncratic volatility of firms' stock returns.

[19]This is computed as: $2.107 \times 0.121 = 0.254947$. 2.107 is the $SinglePred$ coefficient magnitude in Column 4 of Table 10. The standard deviation of $SinglePred$ is 0.121.

Again, results are very strong regardless of specification. T-statistics are 2.5 and above, while a one-standard deviation change in $SinglePred$ moves idiosyncratic volatility by 3.8% (the sample mean is 37.0%).[20]

Overall, these results confirm the effect of marital status on firm risk-taking that is consistent with our model. The instrumental variable approach helps rule out innate heterogeneity among CEOs that is correlated with marital status as an explanation of our results. It also potentially strengthens our results by reducing the effect of measurement error that arises from our classification of CEOs into "single" and "married."

4.3 State-level Variation

One potential source of concern regarding our instrumental variable approach is the possibility that our instrument is systematically correlated with variation in firm investment opportunities across states. Most of the firms in our sample are fairly large companies operating at the national level, so that the economic activity in the state where their headquarters are located is unlikely to drive their investment opportunities. Nevertheless, as we do not have data on the geographic composition of firms' investment, we cannot rule out this possibility directly. Instead, we attempt to control for state-level variation in investment opportunities using state-level macroeconomic variables.[21]

We use the following variables to capture state-level economic activity: the annual growth rate in nonfarm payroll employment ($Payroll$) and the in-state Coincident Economic Activity Index constructed by the Federal Reserve Bank of Philadelphia ($CEAI$), as well as the logarithm of real per capital income ($LogIncomeState$). Column (6) of Table 9 shows that adding these variables as controls in the first-stage regression does not have an effect, with none of the three coefficients being significant.

Column (6) in Tables 10 and 11 present the second-stage results for investment and idiosyncratic volatility, respectively, using the full set of controls, including the state-level ones. Our results are not altered by the inclusion of these controls. The only statistically

[20]This is computed as: $0.316 \times 0.121 = 0.038236$. 0.316 is the $SinglePred$ coefficient magnitude in Column 4 of Table 11. The standard deviation of $SinglePred$ is 0.121.

[21]The OLS results reported in Section 3 are robust to the inclusion of state fixed effects. Clearly, we cannot include these in the IV estimation due to the cross-sectional nature of our instrument.

significant state-level coefficient is that of *LogIncomeState* on investment, indicating that firms headquartered in states with higher per capita income on average invest more. At the same time, the effect of the state-level economic activity index, while not statistically significant, is negative. Overall, we conclude that our instrumental variable results are not likely to be due to differences in economic conditions across states.

5 Conclusion

There is substantial evidence in economics that interpersonal comparisons are important for individual subjective well-being (e.g., Luttmer (2005), Dynan and Ravina (2007)) and that such comparisons affect consumption choices (Charles, Hurst, and Roussanov (2009)). Less is known empirically about the impact of relative wealth concerns on attitudes towards risk. In this paper, we consider the implications of models in which status concerns arise endogenously as a result of competition in markets where allocations are not mediated by prices, such as the marriage market. In our model, complementarity between wealth and spouse quality induces single individuals to take on (idiosyncratic) risk in hopes of securing a desirable mate. In particular, the model predicts that single individuals take more risk than married ones.

We use risk-taking by corporate CEOs as a setting for testing the model's predictions. CEOs represent the upper tail of the wealth distribution (Kaplan and Rauh (2010)), where status concerns are likely to be most acute. Moreover, their management decisions have significant economic impact. We find that single CEOs invest more aggressively (in capital expenditures, R&D, advertising, and acquisitions) and that their companies exhibit higher stock return volatility (controlling for a variety of personal and firm characteristics). These effects are not only statistically significant, but also economically important. Our results are strengthened when we adopt an instrumental variable approach, based on variation in divorce laws across U.S. states. This variation is likely exogenous to firm investment and return volatility, but has a strong effect on the probability of a CEO being married, holding all else equal, and consequently on the measures of firm risk-taking.

In sum, our evidence supports the view that status concerns are important for financial decisions, and lead individuals to assume more risk. These findings have potentially rich implications in both corporate finance and asset pricing. In corporate finance, status concerns may help mitigate the potential underinvestment in risky projects and inefficiently high correlation with common shocks that are the consequences of risk aversion and moral hazard (since common shocks are more easily observable and can also be hedged by agents - Holmstrom (1982), Acharya and Bisin (2009)).[22] This mitigating effect of status may play a significant role in various models of CEO compensation and, more generally, corporate governance. It may also help explain the mixed evidence in support of the hypothesis by Shleifer and Vishny (1986) that concentrated ownership leads to inefficient over-diversification of tightly-held firms (e.g., Anderson and Reeb (2003) find the opposite result for family-controlled firms). In asset pricing, it may help reconcile the high investor risk aversion implied by the large risk premia on publicly traded assets with evidence of poor diversification of individual households' portfolios as well as with large amounts of idiosyncratic risk taken on by entrepreneurs.

[22]Panousi and Papanikolaou (2012) find that an increase in idiosyncratic volatility decreases corporate investment, which is consistent with the effect of managerial risk aversion. Hirshleifer, Low, and Teoh (2012) show that managers who appear less sensitive to idiosyncratic risk are more successful in pursuing innovation.

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Table 1: CEO Marital Status: A Diagnostic

	1	2	3	4	5
Intercept	2.455	1.452	2.396	2.391	1.410
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Net Worth	-0.032			-0.018	
	(0.000)			(0.000)	
Largest Asset		-0.018			-0.011
		(0.000)			(0.001)
Income			-0.488	-0.279	-0.080
			(0.000)	(0.000)	(0.000)
Age	-0.130	-0.121	-0.125	-0.126	-0.118
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Age^2/100$	0.125	0.113	0.119	0.121	0.111
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\Pr(Single \mid Median)$	0.203	0.117	0.122	0.149	0.113

This table presents the results of logit regressions of marital status on measures of wealth, income, and age using the data from 2001 Survey of Consumer Finances:

$$\Pr\left(Single\right) = \Phi\left(\alpha + \beta \times Wealth + \gamma \times Income + \delta \times Age + \zeta \times \frac{Age^2}{100}\right),$$

where Φ is the logistic c.d.f. Specifications (1) and (4) use *Net Worth* as a measure of wealth in the SCF, while specifications (2) and (5) use the value of the single largest risky asset holding (*Largest Asset*) as a proxy for wealth. We also show the implied probability of a median CEO being single based on these estimates. The implied probabilities are computed based on the median CEO wealth of $13.8 million (using CEO's holdings of company stock and options), median CEO income of $2.2 million, and median CEO age of 55 years.

Table 2: Summary Statistics

Panel A. Risk-taking measures

	Investment	CapEx	R&D	Advertising	Net Acq.	Vol.	Id. vol.
				Married CEOs			
Mean	0.90	0.27	0.25	0.08	0.24	0.37	0.34
Median	0.36	0.19	0.00	0.00	0.00	0.31	0.28
1st. Perct.	-0.02	0.01	0.00	0.00	-0.31	0.00	0.09
99th Perct.	11.25	1.69	4.50	1.63	6.31	3.72	1.12
N	21,876	21,876	21,876	21,876	21,876	20,433	20,418
				Single CEOs			
Mean	1.52	0.32	0.58	0.12	0.38	0.45	0.42
Median	0.48	0.22	0.00	0.00	0.00	0.37	0.34
1st. Perct.	0.00	0.00	0.00	0.00	-0.29	0.07	0.11
99th Perct.	19.85	2.04	8.86	3.94	9.51	9.51	1.41
N	4,224	4,224	4,224	4,224	4,224	3,786	3,785

Panel B. Control variables

	Assets	M/B	CF	Leverage	Firm Age	CEO Age	Tenure	Wealth
					Married CEOs			
Mean	12,517	1.94	0.54	0.36	25.6	55.0	5.1	166
Median	1,615	1.46	0.39	0.35	22.0	55.0	4.0	16
1st. Perct.	47	0.79	-5.30	0.00	3.0	38.0	0.0	0
99th Perct.	208,335	8.85	8.38	1.27	57.0	77.0	24.0	1,853
N	21,856	21,876	21,876	21,876	21,876	20,885	21,876	16,531
					Single CEOs			
Mean	2,076	2.14	0.31	0.30	18.5	52.6	4.5	36
Median	595	1.56	0.37	0.25	13.0	53.0	3.0	8
1st. Perct.	26	0.69	-12.20	0.00	3.0	36.0	0.0	0
99th Perct.	24,563	10.82	17.42	1.57	57.0	70.0	22	360
N	4220	4,224	4,224	4,224	4,224	3,960	4,224	2,969

Panel A reports the summary statistics for various measures of firm risk-taking. Investment (*Investment*) and its components (*CapEx*, *R&D*, *Advertising*, and *NetAcquisitions*) are relative to *PP&E*. Volatility is the (annualized) standard deviation of monthly stock returns over the previous year. Idiosyncratic volatility is the standard deviation of residuals from the regression of stock returns on the market return.

Panel B reports the summary statistics for our main control variables. Firm assets (A) and CEO wealth (*Wealth*) are expressed in millions. Market-to-book ratio (M/B) is the ratio of the market value of assets to their book value. Cash flow (CF) equals earnings before extraordinary items plus depreciation & amortization, scaled by net *PP&E*. Book leverage (*Leverage*) equals the sum of long-term and current debt divided by the sum of long-term debt, current debt, and book equity. Firm age (*Firm Age*) is computed with respect to the first year it appears in COMPUSTAT (expressed in years, as are CEO age and tenure).

Table 3: Regression Results for Total Investment

	1	2	3	4	5
CF_t	0.091	0.096	0.095	0.095	
	(5.551)	(5.941)	(5.882)	(5.878)	
M_{t-1}/B_{t-1}	0.118	0.114	0.108	0.108	
	(7.894)	(7.676)	(7.363)	(7.349)	
$logA_{t-1}$	-0.128	-0.131	-0.151	-0.154	
	(-11.844)	(-11.847)	(-11.335)	(-11.745)	
$Leverage_{t-1}$	0.195	0.188	0.198	0.198	
	(3.525)	(3.328)	(3.498)	(3.506)	
$Investment_{t-1}$	0.484	0.476	0.475	0.475	
	(18.104)	(19.099)	(19.043)	(18.980)	
$FirmAge$	-0.002	-0.002	-0.002	-0.002	
	(-3.071)	(-2.418)	(-2.350)	(-2.273)	
$Single$	0.093	0.069	0.090	0.087	0.453
	(2.349)	(1.712)	(2.249)	(2.181)	(5.234)
Age		-0.004	-0.003	-0.003	-0.029
		(-2.782)	(-2.114)	(-2.072)	(-9.768)
$Age \times Single$		-0.019	-0.019	-0.019	-0.042
		(-2.613)	(-2.631)	(-2.638)	(-2.928)
$Tenure$		-0.009	-0.009	-0.009	-0.007
		(-3.727)	(-3.920)	(-3.875)	(-1.262)
$Tenure \times Single$		0.017	0.016	0.016	0.039
		(1.440)	(1.372)	(1.389)	(1.474)
$CEOProminence$			0.035	0.035	-0.002
			(3.832)	(3.842)	(-0.186)
$FirmProminence$			0.004	0.004	
			(0.405)	(0.416)	
$Inst$				0.133	
				(1.849)	
$Inst \times Single$				0.022	
				(0.103)	
R^2	0.45	0.44	0.44	0.44	0.04

The table reports coefficient estimates of the following OLS regression:

$$Investment = \alpha + \beta \times Single + \gamma \times X + \delta \times Y + \zeta \times (Single \times \tilde{Y}),$$

where $Investment$ is capital expenditures plus acquisitions minus asset sales plus R&D expenditure plus advertising expenditure (scaled by net property, plant & equipment), $Single$ is a dummy variable equaling one if the CEO is unmarried and zero otherwise, X is a set of firm characteristics, and Y is a set of CEO characteristics (the specific variable definitions are given in Section 2), demeaned when used in interaction terms: $\tilde{Y} = Y - \hat{E}Y$. All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by firm.

Table 4: Regression Results for Net Acquisitions

	1	2	3	4	5
CF	0.069	0.070	0.070	0.069	
	(10.620)	(10.215)	(10.194)	(10.145)	
M_{t-1}/B_{t-1}	0.015	0.016	0.015	0.015	
	(2.370)	(2.344)	(2.167)	(2.177)	
$logA_{t-1}$	-0.046	-0.047	-0.050	-0.053	
	(-8.394)	(-8.566)	(-8.133)	(-8.570)	
$Leverage_{t-1}$	0.242	0.250	0.251	0.252	
	(7.438)	(7.409)	(7.405)	(7.424)	
$NetAcq_{t-1}$	0.239	0.237	0.237	0.236	
	(13.332)	(13.135)	(13.147)	(13.069)	
$FirmAge$	-0.001	-0.001	-0.001	-0.001	
	(-3.109)	(-2.718)	(-2.683)	(-2.530)	
$Single$	0.035	0.035	0.039	0.038	0.095
	(1.415)	(1.347)	(1.482)	(1.452)	(2.587)
Age		-0.001	-0.000	-0.000	-0.005
		(-0.621)	(-0.414)	(-0.312)	(-3.741)
$Age \times Single$		-0.007	-0.006	-0.007	-0.012
		(-1.753)	(-1.749)	(-1.762)	(-2.276)
$Tenure$		-0.004	-0.004	-0.004	-0.003
		(-2.107)	(-2.162)	(-2.160)	(-1.257)
$Tenure \times Single$		0.013	0.013	0.013	0.021
		(1.655)	(1.640)	(1.653)	(1.844)
$CEOProminence$			0.008	0.008	-0.014
			(1.504)	(1.519)	(-2.587)
$FirmProminence$			-0.001	-0.001	
			(-0.217)	(-0.178)	
$Inst$				0.182	
				(5.048)	
$Inst \times Single$				-0.063	
				(-0.558)	
R^2	0.15	0.15	0.15	0.15	0.01

The table reports coefficient estimates of the following OLS regression:

$$NetAcq = \alpha + \beta \times Single + \gamma \times X + \delta \times Y + \zeta \times (Single \times \tilde{Y}),$$

where $NetAcq$ is acquisitions minus asset sales (scaled by net property, plant & equipment), $Single$ is a dummy variable equaling one if the CEO is unmarried and zero otherwise, X is a set of firm characteristics, and Y is a set of CEO characteristics (the specific variable definitions are given in Section 2), demeaned when used in interaction terms: $\tilde{Y} = Y - \hat{E}Y$. All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by firm.

Table 5: Regression Results for R&D and Advertising

	1	2	3	4	5
CF_t	0.009	0.010	0.010	0.009	
	(1.592)	(1.684)	(1.644)	(1.640)	
M_{t-1}/B_{t-1}	0.015	0.013	0.012	0.012	
	(2.787)	(2.397)	(2.155)	(2.144)	
$logA_{t-1}$	-0.026	-0.028	-0.033	-0.033	
	(-6.738)	(-6.822)	(-6.739)	(-6.862)	
$Leverage_{t-1}$	-0.019	-0.025	-0.023	-0.023	
	(-1.125)	(-1.422)	(-1.303)	(-1.304)	
$R\&D + Advertising_{t-1}$	0.806	0.800	0.799	0.799	
	(39.609)	(38.798)	(38.546)	(38.576)	
$FirmAge$	-0.000	0.000	0.000	0.000	
	(-0.587)	(0.019)	(0.098)	(0.115)	
$Single$	0.033	0.024	0.029	0.029	0.324
	(2.598)	(1.932)	(2.402)	(2.228)	(5.667)
Age		-0.001	-0.001	-0.001	-0.016
		(-1.966)	(-1.393)	(-1.395)	(-8.702)
$Age \times Single$		-0.005	-0.005	-0.005	-0.024
		(-1.879)	(-1.886)	(-1.880)	(-2.478)
$Tenure$		-0.002	-0.002	-0.002	-0.003
		(-2.597)	(-2.769)	(-2.694)	(-1.143)
$Tenure \times Single$		0.002	0.002	0.001	0.013
		(0.541)	(0.475)	(0.446)	(0.713)
$CEOProminence$			0.009	0.009	0.016
			(3.233)	(3.226)	(2.148)
$FirmProminence$			0.001	0.001	
			(0.198)	(0.192)	
$Inst$				-0.000	
				(-0.014)	
$Inst \times Single$				0.032	
				(0.382)	
R^2	0.76	0.76	0.76	0.76	0.05

The table reports coefficient estimates of the following OLS regression:

$$R\&D + Advertising = \alpha + \beta \times Single + \gamma \times X + \delta \times Y + \zeta \times (Single \times \tilde{Y}),$$

where $R\&D + Advertising$ is R&D expenditure plus advertising expenditure (scaled by net property, plant & equipment), $Single$ is a dummy variable equaling one if the CEO is unmarried and zero otherwise, X is a set of firm characteristics, and Y is a set of CEO characteristics (the specific variable definitions are given in Section 2), demeaned when used in interaction terms: $\tilde{Y} = Y - \hat{E}Y$. All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by firm.

Table 6: Regression Results for Return Volatility

	1	2	3	4	5
CF_t	-0.006	-0.005	-0.005	-0.005	
	(-6.430)	(-5.694)	(-5.753)	(-5.781)	
M_{t-1}/B_{t-1}	0.006	0.005	0.004	0.004	
	(3.938)	(3.200)	(3.016)	(3.074)	
$logA_{t-1}$	-0.022	-0.022	-0.024	-0.023	
	(-10.978)	(-10.546)	(-9.768)	(-9.892)	
$Leverage_{t-1}$	0.077	0.071	0.072	0.072	
	(8.708)	(7.975)	(7.977)	(8.002)	
Vol_{t-1}	0.408	0.405	0.404	0.401	
	(9.523)	(8.891)	(8.850)	(8.659)	
$FirmAge$	-0.001	-0.001	-0.001	-0.001	
	(-6.678)	(-6.428)	(-6.384)	(-6.436)	
$Single$	0.012	0.008	0.009	0.011	0.067
	(2.640)	(1.761)	(2.054)	(2.303)	(7.827)
Age		-0.001	-0.001	-0.001	-0.004
		(-4.114)	(-3.781)	(-3.842)	(-11.458)
$Age \times Single$		-0.001	-0.001	-0.001	-0.002
		(-1.460)	(-1.452)	(-1.530)	(-1.188)
$Tenure$		-0.001	-0.001	-0.001	-0.001
		(-1.877)	(-1.992)	(-2.300)	(-1.021)
$Tenure \times Single$		0.001	0.000	0.001	-0.000
		(0.693)	(0.610)	(0.843)	(-0.198)
$CEOProminence$			0.003	0.003	-0.007
			(3.115)	(3.152)	(-4.556)
$FirmProminence$			-0.001	-0.001	
			(-0.962)	(-0.972)	
$Inst$				-0.034	
				(-3.789)	
$Inst \times Single$				-0.061	
				(-1.951)	
R^2	0.48	0.48	0.48	0.48	0.20

The table reports coefficient estimates of the following OLS regression:

$$Vol = \alpha + \beta \times Single + \gamma \times X + \delta \times Y + \zeta \times (Single \times \tilde{Y}),$$

where Vol is the annualized standard deviation of monthly stock returns over the previous year, $Single$ is a dummy variable equaling one if the CEO is unmarried and zero otherwise, X is a set of firm characteristics, and Y is a set of CEO characteristics (the specific variable definitions are given in Section 2), demeaned when used in interaction terms: $\tilde{Y} = Y - \hat{E}Y$. All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by firm.

Table 7: Regression Results for Idiosyncratic Volatility

	1	2	3	4	5
CF_t	-0.005	-0.004	-0.004	-0.004	
	(-5.488)	(-4.816)	(-4.885)	(-4.858)	
M_{t-1}/B_{t-1}	0.001	0.000	0.000	0.000	
	(0.890)	(0.233)	(0.011)	(0.049)	
$logA_{t-1}$	-0.027	-0.027	-0.028	-0.027	
	(-12.689)	(-12.330)	(-11.506)	(-11.719)	
$Leverage_{t-1}$	0.082	0.078	0.078	0.079	
	(9.644)	(8.988)	(9.010)	(9.104)	
$IdVol_{t-1}$	0.346	0.341	0.340	0.335	
	(8.197)	(7.637)	(7.608)	(7.357)	
$FirmAge$	-0.001	-0.001	-0.001	-0.001	
	(-6.853)	(-6.627)	(-6.572)	(-6.702)	
$Single$	0.012	0.008	0.010	0.012	0.063
	(2.667)	(1.927)	(2.236)	(2.551)	(8.085)
Age		-0.001	-0.001	-0.001	-0.004
		(-3.927)	(-3.551)	(-3.654)	(-11.370)
$Age \times Single$		-0.001	-0.001	-0.001	-0.001
		(-1.278)	(-1.271)	(-1.371)	(-0.960)
$Tenure$		-0.000	-0.000	-0.001	-0.000
		(-1.609)	(-1.733)	(-2.169)	(-0.819)
$Tenure \times Single$		0.000	0.000	0.000	-0.001
		(0.131)	(0.038)	(0.352)	(-0.464)
$CEOProminence$			0.003	0.003	-0.008
			(3.298)	(3.365)	(-6.177)
$FirmProminence$			-0.001	-0.001	
			(-0.913)	(-0.934)	
$Inst$				-0.047	
				(-5.269)	
$Inst \times Single$				-0.076	
				(-2.253)	
R^2	0.44	0.44	0.44	0.45	0.19

The table reports coefficient estimates of the following OLS regression:

$$IdVol = \alpha + \beta \times Single + \gamma \times X + \delta \times Y + \zeta \times (Single \times \tilde{Y}),$$

where $IdVol$ is the annualized standard deviation of residuals from the regression of firm monthly stock returns on the market return, $Single$ is a dummy variable equaling one if the CEO is unmarried and zero otherwise, X is a set of firm characteristics, and Y is a set of CEO characteristics (the specific variable definitions are given in Section 2), demeaned when used in interaction terms: $\tilde{Y} = Y - \hat{E}Y$. All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by firm.

Table 8: Validating the Instrument: Marital Status and Divorce Law in the U.S.

	1	2	3	4
Intercept	1.252	1.185	1.182	1.181
	(260.000)	(220.560)	(220.160)	(219.970)
Comm	-0.007	-0.007	-0.007	-0.007
	(-5.730)	(-4.330)	(-4.180)	(-4.190)
Income	-0.415	-1.374	-1.274	-1.240
	(-38.130)	(-79.080)	(-83.330)	(-82.170)
Age	-0.037	-0.031	-0.031	-0.031
	(-205.780)	(-142.400)	(-142.480)	(-142.440)
Age^2	0.027	0.030	0.030	0.030
	(177.880)	(152.280)	(152.430)	(152.380)
Occ			-0.005	-0.084
			(-0.680)	(-10.790)
$Comm \times Income$	0.193	0.349		
	(9.390)	(11.070)		
$Comm \times Occ$			0.041	0.018
			(3.090)	(1.280)

This table presents the results of an OLS regressions of marital status on measures of income as well as their interactions with the legal regime guiding division of marital assets in divorce in the state of residence, controlling for age, using the data from the 2000 U.S. Census 5% sample from the Integrated Public Use Microdata Series (IPUMS). The regression specification is

$$Single = \alpha + \beta \times Comm + \gamma \times Income + \delta \times Age + \zeta \times \frac{Age^2}{100} + \eta \times Occ + \chi \times \widetilde{Income} \times Comm + \kappa \times \widetilde{Occ} \times Comm,$$

where $Comm$ is the dummy variable equal to one if the household's state of residence is a community property state. $Single$ is a dummy variable equal to one if the head of household has never been married (specification 1) or has never been married, is divorced, or is widowed (specifications 2-4). $Income$ is in millions. Occ is a dummy variable for whether the head of household is either a lawyer or a surgeon/physician by occupation (specification 3) or a chief executive (specification 4). The interacted variables $\widetilde{Income}$ and $\widetilde{Occ}$ are demeaned using population weights. T-statistics are reported in the parentheses.

Table 9: Predicting CEO Marital Status with Divorce Law Instrument

	1	2	3	4	5	6
$Community$	0.050	0.048	0.049	0.049	0.059	0.046
	(3.740)	(3.510)	(3.610)	(3.580)	(4.410)	(3.250)
CF_t	-0.006	-0.003	-0.003	-0.003		-0.001
	(-1.860)	(-0.930)	(-0.870)	(-0.910)		(-0.320)
M_{t-1}/B_{t-1}	-0.008	-0.001	0.001	0.001		0.001
	(-2.170)	(-0.260)	(0.340)	(0.330)		(0.290)
$logA_{t-1}$	-0.041	-0.027	-0.016	-0.017		-0.016
	(-11.050)	(-7.000)	(-3.710)	(-3.910)		(-3.670)
$Leverage_{t-1}$	0.018	-0.010	-0.014	-0.015		-0.011
	(0.800)	(-0.410)	(-0.620)	(-0.640)		(-0.480)
$IdVol_{t-1}$	0.037	0.020	0.029	0.031		0.035
	(1.740)	(0.870)	(1.320)	(1.440)		(1.620)
$Investment_{t-1}$	0.009	0.008	0.008	0.008		0.008
	(2.950)	(2.640)	(2.820)	(2.800)		(2.640)
$FirmAge$	-0.001	-0.002	-0.002	-0.002		-0.002
	(-3.260)	(-3.840)	(-3.730)	(-3.670)		(-3.680)
Age		-0.002	-0.003	-0.003	-0.004	-0.003
		(-2.900)	(-3.780)	(-3.760)	(-5.450)	(-4.050)
$Tenure$		-0.002	-0.002	-0.002	-0.002	-0.002
		(-1.400)	(-1.350)	(-1.330)	(-1.430)	(-1.630)
$Wealth$		-0.021	-0.017	-0.017	-0.020	-0.019
		(-7.220)	(-5.810)	(-5.780)	(-7.250)	(-6.180)
$CEOProminence$			-0.021	-0.021	-0.031	-0.022
			(-5.370)	(-5.370)	(-10.570)	(-5.610)
$FirmProminence$			-0.003	-0.002		-0.002
			(-0.720)	(-0.710)		(-0.660)
$Inst$				0.040		0.033
				(1.540)		(1.300)
$Payroll$						0.069
						(0.100)
$CEAI$						-0.121
						(-0.280)
$LogIncomeState$						0.055
						(1.200)
R^2	0.09	0.10	0.11	0.11	0.09	0.11

The table reports coefficient estimates of the following OLS regression:

$$Single = \alpha + \beta \times Community + \gamma \times X + \delta \times Y + \zeta \times Z,$$

where *Single* is a dummy variable equaling one if the CEO is unmarried and zero otherwise, *Community* is a dummy variable equaling one if the firm is headquartered in a community property state and zero otherwise, X is a set of firm characteristics, Y is a set of CEO characteristics, and Z is a set of state-level control variables (the specific variable definitions are given in Sections 2 and 4.3). All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by state.

Table 10: IV Results for Total Investment

	1	2	3	4	5	6
CF_t	0.109	0.109	0.108	0.108		0.109
	(6.110)	(5.350)	(5.410)	(5.370)		(5.600)
M_{t-1}/B_{t-1}	0.135	0.103	0.096	0.096		0.096
	(9.940)	(7.890)	(7.850)	(7.870)		(7.070)
$logA_{t-1}$	-0.030	-0.083	-0.122	-0.123		-0.128
	(-0.800)	(-2.980)	(-5.890)	(-5.840)		(-6.440)
$Leverage_t$	0.148	0.245	0.255	0.255		0.292
	(2.330)	(4.550)	(4.900)	(4.920)		(5.420)
$Investment_{t-1}$	0.470	0.464	0.463	0.463		0.456
	(18.890)	(20.690)	(20.220)	(20.160)		(18.780)
$FirmAge$	0.001	0.002	0.002	0.002		0.003
	(0.720)	(1.200)	(1.200)	(1.210)		(1.610)
$SinglePred$	2.299	2.197	2.114	2.107	5.367	2.357
	(2.560)	(2.260)	(2.440)	(2.380)	(1.880)	(2.990)
Age		-0.003	-0.001	-0.001	-0.005	-0.000
		(-1.130)	(-0.350)	(-0.350)	(-0.450)	(-0.080)
$Tenure$		-0.003	-0.004	-0.004	0.001	-0.003
		(-0.910)	(-1.180)	(-1.170)	(0.250)	(-1.130)
$Wealth$		0.073	0.059	0.059	0.155	0.071
		(3.600)	(3.690)	(3.690)	(2.670)	(4.280)
$CEOProminence$			0.076	0.075	0.134	0.076
			(4.210)	(4.150)	(1.610)	(4.930)
$FirmProminence$			0.004	0.004		0.009
			(0.360)	(0.360)		(0.830)
$Inst$				0.020		0.047
				(0.190)		(0.570)
$Payroll$						0.641
						(0.270)
$CEAI$						-1.448
						(-0.770)
$LogIncomeState$						0.285
						(2.300)
R^2	0.446	0.445	0.445	0.445	0.170	0.450

The table reports coefficient estimates of the following OLS regression:

$$Investment = \alpha + \beta \times SinglePred + \gamma \times X + \delta \times Y + \zeta \times Z,$$

where *Investment* is capital expenditures plus acquisitions minus asset sales plus R&D expenditure plus advertising expenditure (scaled by net property, plant & equipment), *SinglePred* is the predicted value for *Single* computed using coefficient estimates for the corresponding specification in Table 9, X is a set of firm characteristics, Y is a set of CEO characteristics, and Z is a set of state-level control variables (the specific variable definitions are given in Sections 2 and 4.3). All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by state, taking into account the uncertainty in first-stage estimates.

Table 11: IV Results for Idiosyncratic Volatility

	1	2	3	4	5	6
CF_t	-0.003	-0.003	-0.004	-0.003		-0.004
	(-3.210)	(-3.270)	(-3.470)	(-3.260)		(-3.830)
M_{t-1}/B_{t-1}	0.003	0.002	0.001	0.001		0.001
	(1.810)	(1.130)	(0.580)	(0.660)		(0.520)
$logA_{t-1}$	-0.015	-0.017	-0.022	-0.020		-0.020
	(-3.340)	(-4.920)	(-7.760)	(-7.290)		(-7.490)
$Leverage_t$	0.077	0.078	0.079	0.080		0.079
	(11.500)	(11.180)	(10.990)	(10.920)		(11.330)
$IdVol_{t-1}$	0.331	0.330	0.326	0.321		0.318
	(7.610)	(7.020)	(6.910)	(6.730)		(6.670)
$FirmAge$	-0.000	-0.000	-0.000	-0.000		-0.000
	(-1.970)	(-1.370)	(-1.540)	(-1.590)		(-1.460)
$SinglePred$	0.297	0.308	0.301	0.316	0.643	0.330
	(2.680)	(2.480)	(2.570)	(2.560)	(2.660)	(2.730)
Age		-0.000	0.000	0.000	0.000	0.000
		(-0.330)	(0.380)	(0.390)	(0.140)	(0.470)
$Tenure$		0.000	0.000	0.000	0.001	0.001
		(1.130)	(0.980)	(0.960)	(1.800)	(1.400)
$Wealth$		0.003	0.001	0.001	0.000	0.002
		(0.980)	(0.480)	(0.460)	(0.080)	(0.710)
$CEOProminence$			0.010	0.011	0.013	0.011
			(4.410)	(4.390)	(1.910)	(4.540)
$FirmProminence$			-0.000	-0.000		-0.000
			(-0.300)	(-0.350)		(-0.350)
$Inst$				-0.075		-0.075
				(-4.880)		(-5.000)
$Payroll$						0.108
						(0.350)
$CEAI$						0.190
						(0.640)
$LogIncomeState$						0.003
						(0.190)
R^2	0.443	0.442	0.442	0.444	0.301	0.444

The table reports coefficient estimates of the following OLS regression:

$$IdVol = \alpha + \beta \times SinglePred + \gamma \times X + \delta \times Y + \zeta \times Z,$$

where $IdVol$ is the annualized standard deviation of residuals from the regression of firm monthly stock returns on the market return, $SinglePred$ is the predicted value for $Single$ computed using coefficient estimates for the corresponding specification in Table 9, X is a set of firm characteristics, Y is a set of CEO characteristics, and Z is a set of state-level control variables (the specific variable definitions are given in Sections 2 and 4.3). All specifications also include industry (based on the Fama-French 49-industry classification) and year fixed effects (unreported). T-statistics are in parentheses, and are computed using robust standard errors clustered by state, taking into account the uncertainty in first-stage estimates.