Attitudes towards Non-compliance and the Demand for External Finance[*]

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February 2018

Abstract

We study the link between individual propensity to violate moral principles and demand for finance based on two datasets – the World Values Survey and a dataset with the legal records of CEOs of U.S. publicly traded companies. We find that individuals who are more tolerant of moral principle violations are more likely to borrow. Corporate executives with legal records are associated with larger mortgages (both in absolute terms and relative to the value of their home). Reverse causality and individual attitudes towards risk are unlikely explanations of our findings. We contend that non-compliance relaxes participation constraints in capital markets by lowering the psychological costs of entering and breaking a contract.

I. Introduction

Most financial contracts, no matter how complex, are about the exchange of resources over extended periods of time. As a result, the propensity of each party to honor the terms of the contract is an important aspect in financial markets. To internalize these non-compliance problems societies develop a set of external controls (institutions) that monitor the behavior of economic agents.[1] However, the monitoring provided by these institutions is imperfect. Most financial contracts are inherently incomplete (Grossman and Hart (1986), Hart and Moore (1990)); and even if contracts outline well all contingencies, society exhibits limited resources to enforce the law. As a consequence, the individual tendency for compliance with the existing moral principles in society is an important factor for finance (Guiso et al. (2013), Erhard et al. (2016)).

In this paper, we explore empirically the proposition that individual attitudes towards non-compliance affect their demand for external finance. The value of a short position in a financial contract has two components – the value of the capital raised and the value of the option to break the contract in the future when market conditions have changed. We expect that the value of the option to break a contract is generally less valuable for more compliant individuals because these individuals are less likely to exercise the option. Less compliant individuals, on the other hand, would find the default option and the overall contract more valuable. As a consequence, everything else held constant, less compliant individuals are expected to participate more actively on the demand-side of capital markets.

We conduct our empirical analysis based on two data sets – the World Values Survey (WVS) and a data set with the legal records of US CEOs. The WVS contains information on self-declared attitudes towards non-compliance for a large cross-section of individuals from 86 countries and allows us to explore how non-compliance relates to borrowing decisions. In particular, the survey contains a series of questions assessing individual willingness to claim government benefits to which they are not entitled, to avoid a fare on public transport, to cheat on taxes if they have a chance, and to accept a bribe in the course

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[1] North (1990) defines these institutions as the "humanly devised constraints that shape human interaction" and classifies them as formal (e.g., the legal system) and informal (e.g., social norms).

of their duties. Based on this information, we construct a non-compliance index assessing the individual tendency to engage in non-compliant behavior. The WVS also provides information on the borrowing activity of individuals over the previous year which allows us to assess how self-declared attitudes towards compliance relate to borrowing decisions.

We start our analysis by exploring the demographic and institutional determinants of non-compliance in the WVS. Consistent with the literature on deviant behavior, we find that younger people and men are less likely to adhere to moral principles (Farrington (1986), Steffensmeier and Streifel (1991)). Next, we show that religiosity and risk-aversion tend to restrict (but not eliminate) deviant behavior. More sociable and happier individuals are also less likely to misbehave. Interestingly, non-compliant behavior does not correlate significantly with measures of status, such as employment and income.

Next, we explore how individual attitudes towards non-compliance relate to borrowing. We find that less-compliant individuals are more likely to borrow. The result is both statistically and economically significant – a one standard deviation increase in the value of the non-compliance index increases the debt market participation rate by close to 2 percent. For comparison, a one standard deviation increase in individual income decreases borrowing rates by around 4 percent. In all model specifications, we also include demographic and regional fixed effects to control for both personal and local economic conditions and the finding is well pronounced across individuals with different income and risk-tolerance levels.

In the second half of the paper, we compile a data set with the legal infractions of a sample of CEOs of U.S. publicly traded firms from 1992-2012 and study how revealed preferences for non-compliance relate to demand for external finance. While attitudinal data is informative, it is generally unclear whether self-declared attitudes towards non-compliance translate into non-compliant behavior. As a result, data on the revealed preferences for non-compliance of corporate executives and their demand for external finance provides additional information on the link between non-compliance and financial behavior. We focus on corporate executives because they constitute a group of sophisticated market participants with easily identifiable personal information. We find that 24 percent of the CEOs in our

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sample have broken a law at least once during the period, including violations such as: driving under the influence of alcohol, other drug-related charges, domestic violence, sexual assault, and speeding tickets. Based on this information, we explore whether this group of executives (Non-compliant CEOs) exhibits different financial behavior relative to the rest of the sample (Compliant CEOs).

We find that Non-compliant CEOs are associated with higher personal leverage than Compliant CEOs as reflected in the size of their mortgage (both in absolute terms and relative to the value of their home). The result is economically significant and robust to the inclusion of a wide range of personal and regional controls. For example, our baseline model indicates that after controlling for CEO wealth, the price of the house, and other covariates, non-compliant executives borrow approximately $510,000 more when initiating a mortgage than compliant executives which is approximately one-third of the standard deviation of the mortgage amount across the population. For comparison, executives with military experience borrow approximately $330,000 less and executives with MBA degrees borrow approximately $400,000 more when initiating a mortgage.

One possible explanation for the higher borrowing rate of less-compliant individuals is that they are more risk-tolerant than more-compliant individuals. We argue that attitude towards non-compliance is a fundamentally different personal trait than attitude towards risk. We also control explicitly for attitudes towards risk by constructing a measure for risk-aversion based on the WVS. We show that the association of individual attitudes towards non-compliance and their borrowing decisions is not significantly affected by individual attitudes towards risk. Furthermore, the positive association between non-compliance and borrowing persists among individuals with similar risk-tolerance levels.

The paper contributes to our understanding of the micro-foundations of financial markets. The need for better understanding of individual borrowing decisions is strengthened by the alarming trend of personal over-indebtedness that has contributed to the most severe financial crisis since the Great

Depression (Mian and Sufi (2009), Lusardi and Tufano (2009)).[2] We show that individual propensity for compliance with moral principles restricts the use of leverage. Many authors (e.g., Putnam (2000)) have expressed concern that the quality of many informal institutions in society has been deteriorating over the last few decades. We show that one important personal trait – attitudes towards non-compliance – affects their propensity to use external financing. Our results suggest a possible link between the erosion of certain principles in society and the overuse of leverage.

Our findings indicate a complex relation between institutional quality and finance. The predominant understanding among economists has been that compliance promotes contracting and economic exchange.[3] The intuition is straightforward – compliance reduces the anxiety that people could be cheated and expropriated which relaxes participation constraints in economic interactions (Knack and Keefer (1996), Guiso et al. (2008)). However, this intuition is derived solely from the supply-side of finance. While a greater level of compliance in a community is expected to promote lending and investment, its implications for the demand for finance are not straightforward. Trustworthy and cooperative individuals can be expected to make an effort to live up to promises. Such individuals may also avoid situations in which adversity reduces their ability to fulfill a promise, especially if adversity is hard to observe for those who invest trust in them. Hence, while stronger institutions in society could promote investment; such institutions could also adversely affect the demand for finance.

II. Non-compliance and the Demand for Finance

Economic activity is structured within an elaborate set of contracts. As a result, individual propensity for compliance with the terms in these contracts is essential for the operation of markets and firms. Compliance could be particularly important for financial contracts because they are long-term,

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[2] The rate of personal bankruptcy has more than quadrupled between 1980 and 2005, culminating in the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005, one of the most significant legislative changes to impact households' financial decisions in recent U.S. history (The American Bankruptcy Institute).

[3] The literature has identified various aspects of compliance with existing moral principles under the names social capital (Guiso et al. (2004)), civic cooperation (Putnam (1993)), and interpersonal trust (La Porta et al. (1997), Knack and Keefer (1996)), among others.

high-stakes, and inherently incomplete (Grossman and Hart (1980), Hart and Moore (1990), Guiso et al. (2008)).

There are three main reasons individuals comply with contractual obligations – enforcement, reputation, and morality. Third-party enforcement mechanisms monitor the behavior of economic agents by imposing penalties or sanctions on violators (Mirrlees (1976), Holmström (1979)). Some of the sanctions could be formal (e.g., legal fees and penalties), others could be informal (e.g., shaming). A major characteristic of these mechanisms is that they are enforced externally – for example, through the police, family, friends, and religious authorities. Some scholars have emphasized the importance of external controls for compliant behavior (e.g., Becker (1968)). According to Becker, potential offenders respond to both the probability of detection and the severity of punishment. However, others have contended that the monitoring provided by external institutions is imperfect. For example, most explicit contracts are incomplete because they fail to outline all future contingencies facing both parties (Grossman and Hart (1986)). The legal system also exhibits limited resources to enforce the law (Glaeser, et al. (2001)).

People could also comply with the terms of contractual arrangements because of reputational concerns. In particular, when parties engage in repeated interactions over time, reneging on a promise by an individual might hurt his future payoffs (Klein and Leffler (1981), Kreps (1990), Levin (2003)). Reputation has been recognized as a major factor for compliance not only with bilateral contracts but also for sustaining cooperation more broadly (e.g., Fehr (2004)).

While enforcement and reputation constitute important monitoring mechanisms for individuals, there is overwhelming evidence that these factors alone cannot account for the prevailing tendency of individuals to comply with contracts and norms. Human behavior in contractual relationships is powerfully influenced by a moral force of promise keeping and scholars across various disciplines have been trying to understand better why people keep their promises in the absence of explicit contractual and

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reputational concerns.[4] Two general explanations of the moral force of promise keeping proposed in the literature are the *expectation-based* view and the *commitment-based* view. The expectation-based theory argues that people keep their word in order to avoid guilt when failing to meet the expectation the promise has created in others (see e.g., Charness and Dufwenberg (2006), Beck et al. (2013)). In contrast, the commitment-based theory claims that people prefer to keep their word independently of others' expectations because they suffer a cost from behaving in a way that is inconsistent with what they have promised (see e.g., Braver (1995), Ellingsen and Johannesson (2004)). The common theme of these theories is that breaking a promise (or a contract) is associated with a psychological cost and individuals are well aware of this cost.

In most financial contracts, one party (an investor or a lender) provides funds to another party (an issuer or a borrower). Entering a short position in a financial contract could be viewed as a project which has benefits and costs. The main cost for the position is the compensation that needs to be provided to investors for the financing – e.g., interest payments (in the case of debt). There are two main benefits for the short position – the value of the capital raised (which could be used, for example, for the acquisition of a valuable asset) and the value of the option to breach (or break) the contract. If we denote the values of the two benefits with V and the value of the financing cost with I, we could express the Net Present Value (NPV) of a short position in the contract as follows:

$$NPV = V + V\{Option\ to\ Breach\} - I \tag{1}$$

The value of the option to break the contract generally increases when the value of the underlying contract drops. Thus, the option to break the contract could be viewed as a put option with a hypothetical strike price K below which compliance is not (economically) optimal. However, as the above discussion suggests – there are three different costs associated with breaking the contracts related to enforcement (C_E), reputation (C_R), and morality (C_M). All these costs would tend to "delay" the exercise of the option.

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[4] Notable contributions to the broader literature on promise keeping in political sciences and social psychology include Ostrom, Walker, and Gardner (1992), Sally (1995), and Bicchieri and Lev-On (2007). In legal philosophy, classic references include Fried (1981), Atiyah (1983), and Scanlon (1998). For a recent contribution containing a survey of the previous literature, see Shiffrin (2008).

Consistent with the option pricing literature, equation (1) could be rewritten by outlining the value of the option more explicitly:[5]

$$NPV(C_E, C_R, C_M) = V + PV\{max(0, K - C_E - C_R - C_M - V^T)\} - I \qquad (2)$$

We expect that the enforcement cost C_E would exhibit limited variation across residents within the same jurisdiction given that they are subject to the same laws and regulations. The reputational cost C_R on the other hand, could exhibit some variation across individuals because people have different reputational concerns. For example, economic theory predicts that individuals who are more involved in repeated interactions or individuals for whom reputational capital is more important would exhibit a higher reputational cost of contract violation. Finally, we expect that the moral cost of contract violation C_M would exhibit the strongest variation across individuals reflecting a wide range of personal and cultural attributes and experiences. The main objective of this paper is to quantify this cost and explore its implications for the demand for finance.[6]

The moral cost of breaking a contract is well illustrated in the concept of bankruptcy stigma. Throughout history, bankruptcy was considered a violation of an almost sacred debtor-creditor trust relationship. McIntyre (1989) comments that "bankruptcy is an indication that one has betrayed (or is betraying) a trust that is judged to be important by many. Thus, the debtor contemplating bankruptcy anticipates that betrayal of this trust will lead to a shared outrage and stigma." Bankruptcy stigma has declined substantially over time but even now many more households could benefit financially from filing for bankruptcy than the number that actually files (White (1998), Trautmann and Vlahu (2013)). In a recent study, Guiso et al. (2013) also document that within the current financial crisis eighty two percent of people still think that it is morally wrong to engage in a strategic default.

Finally, we would like to note that the relationship between attitudes towards non-compliance and borrowing could depend significantly on the possibility for future contract re-negotiations. If it is clear to the borrowers *ex ante* that re-negotiation is allowed when market conditions change, then the option to re-

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[5] For the ease of exposition, we assume that the option could be exercised at time T.
[6] Although attitudes towards non-compliance could affect participation in other financial contracts, such as equity, the relative attractiveness of debt and equity to non-compliant individuals is difficult to quantify.

negotiate would make compliant people more comfortable with borrowing. If re-negotiation possibilities are not explicitly outlined in the contract, however, the moral implications of re-negotiations are less clear. The moral ramifications of contract re-negotiations could be also significantly influenced by social factors – in particular, individuals could find it more comfortable re-negotiating a contract if other people in their social circle are re-negotiating.

III. Compliance and Finance: Evidence from the World Values Survey

In this section, we explore the link between non-compliance and borrowing decisions based on the World Values Survey.

A. Data and Summary Statistics

The WVS is a cross-country project coordinated by the Institute for Social Research of the University of Michigan which carries out representative national surveys of the basic values and beliefs of individuals in a large cross-section of countries.[7] The WVS is possibly the most comprehensive international survey of political and sociocultural values and has been used extensively in academic research across a wide range of social sciences.[8] A key feature of the WVS data is that it contains individual responses on a wide set of personal values and attitudes. In addition to the attitude variables, the WVS also provides information on respondent personal characteristics, such as age, education, employment, income, gender, and marital status. Detailed definitions of all variables are provided in the Appendix. The data is derived from surveys performed between 1981 and 2008 and covers close to 250,000 individuals from 86 countries.

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[7] See www.worldvaluessurvey.org
[8] For example, many academics have employed the survey for the study of happiness and the relation between subjective well-being and economic characteristics (e.g., Frey and Stutzer (2002), Bruni and Stanca (2006)). Others have used the survey to study the impact of religious beliefs on economic attitudes (e.g., Guiso et al. (2003)). Numerous authors have also implemented the WVS to construct country-level measures of individual values, such as interpersonal trust (e.g., Knack and Keefer (1997), Glaeser et al. (2000)).

The WVS contains four questions assessing the propensity of each respondent to violate moral principles. In particular, respondents are asked whether they find justifiable *"claiming government benefits to which you are not entitled"*, *"avoiding a fare on public transport"*, *"cheating on taxes if you have a chance"*, and *"accepting a bribe in the course of their duties"*. Answers to all four questions are in the range from 1 to 10, where 1 corresponds to *"never justifiable"* and 10 corresponds to *"always justifiable"*.

Table 1 reports the correlations of the non-compliance measures across respondents. We observe that all four measures are highly positively correlated – correlations between 0.39 and 0.51. In other words, respondents who are willing to violate a given moral principle are also more likely to violate other moral principles. Given the high positive correlation among the variables, we construct a non-compliance index equal to the average value of the four responses.

Table 2 reports the average non-compliance index across all 86 countries in the sample and the total number of respondents in each country. We observe that non-compliance exhibits significant variation across countries. The least compliant countries in the sample are Czech Republic, Slovakia, and Malaysia, while the most compliant countries are Bangladesh, Iraq, and Pakistan. As Table 2 indicates, there is a substantial variation in the non-compliance variable across countries but the sources of this variation are generally unclear. On the one hand, it is possible that people interpret the compliance questions differently across countries.[9] It is also likely that the responses to the compliance question are significantly affected by the degree of freedom of expression in a country. As a result, certain countries could appear highly compliant because respondents in these countries are reluctant to reveal their tolerance for non-compliant behavior (e.g., Iraq). For all these reasons, the country-level differential in non-compliance would be difficult to interpret in our setting. As a consequence, we focus our analysis predominantly on the within-country variation in non-compliance and its relationship to borrowing.

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[9] For example, "avoiding a fare on public transport" could have a different meaning in countries with extensive (or cheap) public transportation vs. countries with limited (or expensive) public transportation.

Table 3 reports summary statistics for all major variables in the study and the number of different countries reporting the corresponding variable. At the top of the table are the non-compliance measures. We observe that avoiding fare on public transportation exhibits the highest non-compliance score, while accepting a bribe, the lowest.

We measure borrowing activity based on responses to the following question: *"During the past year, did your family: 1. 'Save money'; 2. 'Just get by'; 3. 'Spent some savings and borrowed money'; 4. 'Spent savings and borrowed money.'"* In particular, we construct an indicator variable equal to 1 for responses 3 and 4, indicating that the respondent has borrowed money over the previous year. As Table 3 shows, around 27 percent of the respondents borrowed some funds during the previous year.

The average age of the respondents is 40 years and women are approximately 50 percent of the sample. Around 14 percent of the individuals have a university degree and 57 percent of them are married. The largest religious group in the sample is Catholics (25.7 percent), followed by Muslims (19.5 percent), Protestants (10.5 percent), Hindus (3.2 percent), and Jews (0.7 percent).

Throughout the paper, we also use variables assessing the respondent's attitude towards risk, propensity to save, degree of sociability, trust, and happiness. In particular, we measure individual risk-taking attitude on a scale from 1 to 10 based on responses to the question whether "*[o]ne should be cautious about making major changes in life vs. you will never achieve much unless you act boldly*". We assess the respondent's propensity to save (thrift) with a variable indicating whether the respondent considers "*thrift saving money and things*" an important quality. We measure sociability with an assessment on a scale from 1 to 4 of the importance of friends in the respondent's life, where 1 indicates that friends are "*not at all important*", while 4 indicates that friends are "*very important*". We measure trust with an indicator for a positive response on the question: "*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*" Finally, we use a variable for self-declared level of happiness on a scale from 1 to 4.

As Table 3 indicates, the average person exhibits a moderate level of risk-tolerance (average of 5.18 out of 10), relatively high degree of happiness and sociability (averages of 3 and 3.3 out of 4), and

relatively low trust in others (only around 27 percent of the respondents indicate that other people could be trusted).

B. The Determinants of Non-compliance

In this section, we explore how individual propensity to break moral principles relates to basic demographic characteristics. Table 4 reports the results. The dependent variable in all models is the non-compliance index defined in the previous subsection.

We observe that one's propensity to break moral principles declines progressively with age. Women are also less likely to exhibit deviant behavior than men. These results are consistent with the sociology literature which finds that involvement in crime diminishes with age and that females are less likely to commit crime than males at every age (Farrington (1986), Steffensmeier and Streifel (1991))[10]. We also find that married people are less likely to break moral principles than single people.

We also find that religiosity promotes compliance with moral principles. The effect is well pronounced across all major religions and is most robust across Protestants and Muslims. Several authors have suggested that religiosity exhibits an impact on economic behavior, for example through anti-usury attitudes (Stulz and Williamson (2003)) or through a set of values that promotes virtuous behavior such as Weber's "protestant ethic" (Weber (1905)). Consistent with our results, Grullon et al. (2010) find that firms located in regions with higher levels of religiosity are less likely to engage in financial misbehavior. Guiso et al. (2003) and Barro and McCleary (2003) also show that stronger religious beliefs are associated with less rent seeking and a higher rate of economic growth.

Next, we show that while non-compliance tends to decrease with education, it is not significantly related to employment and income. Some sociologists have suggested that people with lower social status could be more likely to violate moral principles to attain their goals or simply retaliate against society (Merton (1938)). The education results are partially consistent with this view. However, the lack of

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[10] Some authors have suggested that the age-crime relation is non-linear – first increases and then decreases with age (e.g. Farrington (1986)). We have also replicated all major tests in the paper including both a linear and a non-linear term for the age-variable. All major inferences in the paper are unaffected by this control.

association between income and norm-violation also suggests that status might not be the main driver behind the education results.

Model 2 of Table 4 extends Model 1 by adding an additional set of personal controls. The model shows that more risk-tolerant people are more likely to violate moral principles. More sociable and happier individuals, on the other hand, tend to be more compliant and trust is not significantly related to deviant behavior. All demographic characteristics exhibit similar economic and statistical significance across the two models.

The main takeaway from this subsection is that our measure of non-compliance correlates with demographic and attitudinal characteristics in a way that is consistent with the theoretical and empirical literature on deviant behavior. The results also suggest possible endogeneity issues with the non-compliance measure. We address the endogeneity issues in greater detail in the next sub-sections.

C. Non-compliance and Borrowing Decisions

In Table 5, we regress individuals' borrowing activity (an indicator for a loan over the previous year) on their tolerance for moral principles violation and a set of personal characteristics. We observe that in all model specifications, the non-compliance measure is significantly positively related to borrowing activity. The effect of non-compliance on financial market participation is also economically meaningful. For example, model (1) indicates that a one standard deviation increase in the value of the non-compliance index increases the participation rate in debt markets by close to 2 percent. For comparison, a one standard deviation increase in individual income level decreases borrowing rates by around 4 percent, while the difference in the borrowing rates of educated and uneducated individuals is around 1 percent.

As noted earlier, there are three main reasons for individuals to live up to contracts – enforcement, reputation, and morality. Our results suggest that morality is an important consideration for the individual propensity to enter a loan contract. In particular, when individuals face high psychological costs of breaking a contract, they internalize these costs and borrow less aggressively. We do not believe

that third-party enforcement mechanisms vary considerably across people within a single country. Reputational considerations, however, could be different across individuals within a single country. In particular, we expect that respondents with greater job mobility could be more concerned about their reputation because it could affect their future employment prospects. Consistent with this conjecture, we observe that more educated individuals are less likely to borrow (after controlling for income and employment status). Consistent with the reputation argument is also the fact that more individualistic individuals (lower sociability value) are more likely to borrow, possibly due to the fact that such individual value reputational capital less.

The other control variables indicate that wealthier individuals are less likely to borrow. This is not surprising since these individuals have more disposable income. We also find that women and married individuals are more likely to borrow. Religiosity tends to discourage borrowing activity, especially among Catholics and Protestants. Finally, we show that more risk-taking individuals are more likely to take a loan.

One source of selection bias that could potentially affect the borrowing results is related to the supply of finance. If non-compliance is positively correlated with the supply of credit, a positive association of borrowing activity with non-compliance could significantly reflect the availability of credit. To control for this effect, we employ proxies for local credit supply in the analysis. In the first two models of Table 5, we control for the availability of credit at the country level with the introduction of country fixed effects.

Credit supply could also vary within countries. The data does not disclose the exact place of residence within the corresponding countries but contains information on the income decile of each respondent. Given that people with similar income levels tend to share the same neighborhoods and socio-economic status, income could capture potentially important variation with respect to credit supply (Borjas (1995)). In the last two models of Table 5, we introduce 850 fixed effects for each country and income-decile combination. We observe that the positive association of borrowing with non-compliance is not significantly affected by the country- and county-income-fixed effects.

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We also believe that omitted credit supply-effects are more likely to create a bias against a positive association of borrowing with non-compliance. As shown in the previous section, non-compliant behavior is predictable based on observable characteristics. If some lenders can predict the non-compliant behavior of some borrowers, non-compliance would correlate *negatively* with the supply of credit. Despite this, we document a significant positive relation between non-compliance and borrowing activity, suggesting that the association between non-compliance and the demand for credit could be substantially stronger than our results indicate.

D. Robustness

We perform a series of robustness tests of the effect of attitudes towards non-compliance on individual borrowing decisions. In Panel A of Table 6, we stratify the sample into quintiles with respect to personal income, while in Panel B of Table 6, we stratify the sample into quintiles with respect to personal risk-tolerance. As noted above, although income does not appear to be strongly correlated with non-compliant behavior, it could be correlated with the variation in credit supply. We observe that the relation between non-compliance and borrowing remains significant within all five income quintiles. The relation between non-compliance and borrowing is also significant in all five risk-tolerance quintiles.

One concern with the estimation is measurement error of the non-compliance variable. It is possible that individual willingness to openly justify deviant behavior varies systematically across countries. In particular, respondents from countries with less freedom of expression could be more reluctant to provide honest responses to the compliance-questions. While this concern is largely mitigated by the inclusion of country fixed effects, in Panel C of Table 6, we estimate the baseline model within quintiles of countries with a similar freedom of expression. We measure freedom of expression with the Voice and Accountability index in the WB Worldwide Governance Indicators. We observe that the association between non-compliance and borrowing becomes insignificant within the quintile of countries with the least freedom of expression. The relatively high standard error of the non-compliance variable in this subsample is consistent with the conjecture that lack of freedom of expression could indeed introduce

measurement error to the non-compliance variable. In all four remaining quintiles, however, non-compliance significantly predicts borrowing.

We also consider an alternative composite index of non-compliance equal to 1 if the respondent indicates tolerance for norm violation in at least one of the four dimensions and equal to 0 if the person rejects non-compliance in all four question. This definition is motivated on the grounds that the most important distinction for an individual could be whether he or she justifies deviant behavior, while the actual degree of justification could be less informative. On average, around 59 percent of the respondents indicate some tolerance of norm violation. All major results in the paper are robust to this alternative definition of non-compliance (results tabulated in the Internet appendix).

One advantage of the qualitative measure for non-compliance is that it allows us to estimate the probability for non-compliant behavior by an individual and to control for this probability in the borrowing regressions via a Propensity Score Matching (PSM) methodology. Within experimental settings, PSM compares the outcomes among individuals that received a treatment (non-compliant individuals) with the outcomes among those who did not (compliant individuals) after accounting for the covariates that predict receiving the treatment (Rosenbaum and Rubin (1983)). In essence, PSM is a multi-dimensional matching and in one of its simplest forms could be implemented in two stages: 1) estimate a logistic model predicting the probability that an individual would receive the treatment; 2) estimate the treatment effect across groups of individuals with similar propensity scores (probability for receiving the treatment). We show that the relation between non-compliance and borrowing remains positive and significant in the propensity score-matched sample (presented in the Internet appendix). The relationship between attitudes towards non-compliance and borrowing is also equally well pronounced across female and male respondents (see Table A.3 in the Internet appendix).

We also explore possible non-linear effects of the relationship between borrowing and non-compliance. In Table 7, we estimate a spline model of borrowing activity on linear splines formed from the respondent's non–compliance index with knots at values of 1.50 and 3.00. We observe that the relationship between borrowing and non-compliance remains positive across different levels of non-

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compliance but the slope of the relationship flattens at higher levels of non-compliance. We also estimate spline regressions with alternative knot-specifications and a quadratic-regression of the relationship between borrowing and non-compliance (see Table A.4 and Figure A.1 of the Appendix) and all major results are qualitatively similar across these specifications.

One interpretation of the finding that the intensity of the relationship between non-compliance and borrowing declines with the degree of non-compliance is that differences in individual tolerance for non-compliance generate greater attitudinal variation across the population at lower levels of non-compliance that at higher levels. This interpretation is consistent with the fact that the distribution of the non-compliance variable is highly skewed to the left. For example, 43 percent of the respondents have a non-compliance index equal to 1 (no tolerance for non-compliance); 20 percent – an index between 1 and 2 (low tolerance for non-compliance); 13 percent – an index between 2 and 3, etc. (see Table A.5 of the Appendix). Thus, the distribution of the variable indicates that an additional unit of tolerance for non-compliance results in a stronger decline of public support for deviant behavior at low levels of non-compliance than at high levels of non-compliance.

IV. Compliance and Finance: Evidence from the Legal Records of CEOs

In this section, we extend our analysis to a data-set with the legal records of CEOs of publicly traded firms. While attitudinal data are informative, it is generally not clear whether self-declared attitudes translate into behavioral patterns. As a result, information on the revealed preferences for non-compliance provides additional evidence on the implications of non-compliance for the demand for finance. We focus on corporate executives because they are a reasonably homogenous group of sophisticated market participants for which public information is readily available.

A. Data and Summary Statistics

To construct our sample, we start with all firms with CEO information on ExecuComp and BoardEx over 1992-2012. To avoid interim CEOs, we exclude CEO/Firm combinations for which the

CEO has spent less than two full years at the firm. We also exclude CEOs with missing biographical information on Boardex such as age (or date of birth) and a work history (used to determine cities of residence). To be included in our sample, a firm must also have headquarters in the US because we cannot acquire additional data for people outside of the US.

Our data on executives' legal infractions are obtained from numerous federal, state and county databases accessed by licensed private investigators. The legal infractions include traffic violations, driving under influence and other drug and alcohol related charges, domestic violence, and sexual assault. Given the extensive costs associated with the purchases of background checks, we restrict our CEO sample to 1000 randomly-selected CEOs. Our final sample consists of 766 different CEOs with non-missing legal, personal, and accounting information.

We set an indicator variable, Non-compliant CEO, equal to 1 if the executive has at least one legal violation as of December 31, 2012, and 0 otherwise. The variable is a static measure indicating whether the person has committed a crime at any point in time during the sample period. We do not measure the variable in real time because we do not think that the revelation of the crime represents a dramatic change of the underlying values of individuals.

Out of the 181 CEOs with a legal record, 137 of them have only traffic violations, while 44 of them have violations more serious than traffic violations. As Table 8 indicates, 18 percent of the observations in the sample are associated with the first type of CEOs and 6 percent of the observations are associated with executives with more serious infractions. In addition, 35 percent of Non-compliant CEOs in our sample have multiple offenses. To mitigate any potential concerns, we investigate our baseline models for any potential structural changes following the first infraction of a record-holder. We find that the statistical association between CEO type and their financing decisions is unaffected by the event of their first infraction.

Non-compliance is not directly observable and our measure identifies a non-compliant individual conditional on being caught. It is likely that some executives in the control sample also exhibit a significant degree of non-compliance but were able to conceal their type during the sample period. As a

result, our approach is conservative and may be biased against finding significant differences in the behavior of the two groups of CEOs.

For all CEOs who purchased a home between 1992 and 2012, we also obtain information whether the purchase was financed with a mortgage and the size of the mortgage. In our mortgage regressions, we exclude CEOs for which mortgage information is not available because it is possible that some of them have a mortgage which is not covered in the data[11]. Finally, we derive information about the home ownership rate, the average mortgage amount, the fraction of people employed in finance, and the average income in the county of residence of each CEO from the 2000 U.S. Census. The five percent sample of the 2000 Census is available from the Integrated Public Use Microdata Series (IPUMS) project from the Minnesota Population Center at the University of Minnesota (see Ruggles et al. (2017)). Respondents are identified by a household and a person number as well as their geographic location, which includes the state and the "Public Use Microdata Area" (PUMA). There are a total of 2,071 PUMAs, which were created to maintain a level of geographic detail while protecting the anonymity of respondents in small counties. PUMAs have about 150,000 inhabitants on average and most of the PUMAs can be linked to a unique county.

Our final sample, described in Table 8, consists of 766 CEOs for which we purchase background checks to determine their legal records. Table 9 reports average CEO personal and county-of-residence characteristics across Non-compliant and Compliant CEOs. We observe that both groups of CEOs are similar across most personal characteristics. We find that Non -compliant CEOs have larger mortgages, are less likely to have begun their career during a recession, and are less likely to be materialistic. Non-compliant executives also are more likely to live in less wealthy and less financially developed areas (Table 9, Panel B).

B. CEO Non-compliance and Personal Borrowing

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[11] CEOs may be excluded because property is held in the name of a trust, the home may have been built with a construction loan without available mortgage terms, the executive may rent, or data may be missing.

We start our analysis by exploring the link between CEO compliance and their propensity to borrow at the personal level. In Table 10, we regress the CEO mortgage amount (measured in 2010 dollars) on an indicator variable for a Non-compliant CEO and personal control variables. In models (2) through (4) we decompose the non-compliance indicator into two components – one for executives with traffic violations only and one for executives with at least one non-traffic violation. All model specifications also control for the house purchase price (expressed in 2010 dollars).

We find that Non-compliant CEOs are associated with larger mortgages. The effect is well pronounced for both traffic- and non-traffic violations; it also appears highly economically significant. As an illustration, model (1) of Table 9 shows that after controlling for CEO wealth, the price of the house, and other covariates, mortgages of non-compliant executives are approximately $510,000 larger than mortgages of compliant executives. Most personal characteristics of the CEOs are not significantly related to their personal leverage[12]. Two exceptions are prior military experience (weakly related) and MBA degree (highly related). CEOs with past military experience borrow approximately $330,000 less when initiating a mortgage and CEOs with MBA degrees borrow approximately $400,000 more. The economic magnitude of non-compliance is relatively high when compared to other personal characteristics associated with personal mortgage borrowing.

We also estimate alternative versions of the mortgage regressions incorporating additional county-level controls into the models.[13] The US financial system is well developed and we do not anticipate dramatic differences in the supply of finance across regions. In many markets, such as the mortgage market, residents could also borrow nationally. This is particularly true for CEOs, who are wealthy and well-connected. Nevertheless, to control for potential supply effects, we include the homeownership rate, the average mortgage amount, and the fraction of people employed in finance in the

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[12] Most of these characteristics are not associated with our measure of non-compliance either. We find that non-compliant CEOs are less likely to begin their careers during a recession and less likely to be materialistic. A correlation matrix presenting the correlations between CEO-level variables is included in the Internet Appendix.

[13] See Table A.6 of the Internet appendix.

neighborhood of the CEOs as additional control variables. In all model specifications, Non-compliant CEOs are associated with larger mortgages than Compliant CEOs.

One potential link between non-compliance and leverage could be the demand for material goods. If less-compliant individuals value material consumption more than more-compliant individuals, this could explain the tendency of less-compliant executives to borrow and overspend. To shed light on this possibility, following Davidson et al. (2015), we introduce an indicator variable (materialism) set to 1 if the executives owns any of the following assets: vehicle with a list price greater than $75k, boat longer than 25 feet, or home worth more than 2 times the median home prices in the Core Based Statistical Area of his firm's headquarters. While materialistic individuals do purchase more expensive homes (as evidenced by the correlation matrix presented in Appendix table A.6), such individuals do not have larger mortgages. We conclude that CEO materialism does not appear to be the driving factor behind the association of non-compliance with borrowing.

V. Conclusion

Individual borrowing decisions have direct implications for investors, lending institutions, and operating companies. The need for better understanding of borrowing decisions is further strengthened by the alarming trend of personal over-indebtedness that has contributed to the most severe financial crisis since the Great Depression. Not surprisingly, consumer and organizational leverage has been the center of heated public debates.

In this paper, we study how individual propensity for non-compliance affects the demand for finance. We find that individuals and corporate executives who are more likely to violate moral principles are also more likely to borrow. Why does non-compliance relax participation constraints in financial markets?

One explanation is reverse-causality – high leverage may increase fraud incidence by providing the incentives for individuals and firms to violate debt covenants. There is statistical evidence that leverage correlates with fraud (Dechow, Sloan and Sweeney (1996), Agrawal, Jaffe, and Karpoff (1999),

Khanna, Kim and Lu (2015)). We believe that reverse causality is an unlikely explanation in our setting. All of our non-compliance variables are measured outside of economic context. The WVS asks people about their fundamental values and attitudes and it seems unlikely that these attitudes are influenced significantly by the respondents' borrowing activity over the previous year. Non-compliance is not significantly related to employment and income and most of the infractions of corporate executives were conducted outside of any economic context.

Another possible explanation of our findings is attitudes towards risk. Is it possible that non-compliance simply proxies for risk-tolerance? We argue that the propensity for non-compliance is fundamentally different from the propensity to take risks. Compliance (and non-compliance) with moral principles is a more fundamental psychological trait than the decision to engage in a risky activity. There is also extensive empirical evidence that, once other factors are accounted for, the influence of risk-related judgment on compliance is insignificant or economically negligible (Tyler 1990). Along these lines, in a review of studies of drug use, MacCoun (1993) also finds that only around 5 percent of the variance in drug-use behavior is explainable through variation in risk estimates.

Our empirical results also suggest that attitude towards risk is an unlikely explanation of the link between non-compliance and external financing. For example, the models in Table 5 indicate that the addition of the risk-aversion-variable to the right-hand side of the borrowing-regression exhibits no substantial impact on the significance of the non-compliance variable. The association of non-compliance and borrowing also persists across individuals with similar levels of risk-tolerance (Table 7). Finally, controlling for an executive's wealth does not moderate the relation between non-compliance and personal mortgage size.

As discussed in Section II, there are two sources of value for a short position in a financial contract – the value of the capital raised and the value of the option to break the contract. The value of the option to break the contract is regulated by the following mechanisms – third-party enforcement, reputation, and morality. When enforcement, reputation concerns, and moral convictions are strong, the option is less valuable. As noted earlier, there is also extensive evidence in the academic literature that the

moral force of promise keeping is a particularly important factor for compliance with contracts. Because compliant individuals rationally internalize the psychological costs associated with contract violations in their decisions, they are expected to be less active in financial markets. Thus, our results are consistent with the idea that more compliant individuals face a higher psychological cost for breaking a contract.

Appendix: Variables Description

Variable	Description and Data-sources
World Values Survey Variables	
Non-compliance	The average of the variables Claiming government benefits, Avoiding fare, Cheating on taxes, and Accepting a bribe, defined below.
Claiming government benefits	A response on a scale from 1 to 10 justifying "claiming government benefits to which you are not entitled" *Question F114 (Waves 1-4)*
Avoiding fare	A response on a scale from 1 to 10 justifying "avoiding a fare on public transport" *Question F115 (Waves 1-4)*
Cheating on taxes	A response on a scale from 1 to 10 justifying "cheating on taxes if you have a chance" *Question F116 (Waves 1-4)*
Accepting a bribe	A response on a scale from 1 to 10 justifying "someone accepting a bribe in the course of their duties" *Question F117 (Waves 1-4)*
Borrow	An indication for borrowing money over the previous year. *Question X044*
Age	Respondent's age. *Question X003 (Waves 3-4)*
Education	An indicator variable for college degree. *Question X025 (Waves 1-4)*
Employment	An indicator variable for employment status (1, if employed). *Question X028 (Waves 1-4)*
Income	Income decile (country-specific). *Question X047CS (Waves 2-4)*
Female	An indicator variable for a female respondent. *Question X001 (Waves 1-4)*
Married	An indicator variable for a married respondent. *Question X007 (Waves 1-4)*
Protestant	An indicator for a Protestant. *Question F025 (Waves 1-4)*
Catholic	An indicator for a Catholic. *Question F025 (Waves 1-4)*
Muslim	An indicator for a Muslim. *Question F025 (Waves 1-4)*
Hindu	An indicator for a Hindu. *Question F025 (Waves 1-4)*
Jewish	An indicator for a Jew. *Question F025 (Waves 1-4)*
Risk taking	An indication on a scale from 1 to 10 of the respondent willingness to take risks; in particular, response (1) states that "[o]ne should be cautious about major changes in life," while response (10) states that "[o]ne should act boldly to achieve". *Question E045 (Waves 2,3)*
Thrift	An indicator for a positive answer to the question whether "thrift saving money and things" is an important child quality. *Question A038 (Waves 1-4)*
Sociability	An assessment on a scale from 1 to 4 of the importance of friends in the respondent's life. *Question A002 (Waves 2-4)*
Trust	An indicator for the response: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" *Question A165 (Waves 1-4)*
Happiness	An assessment of personal level of happiness on a scale from 1 to 4. *Question A008 (Waves 1-4)*

Appendix (contd.)

Variable	Description and Data-sources
CEO Personal Characteristics	
Non-compliant CEO	An indicator variable set to 1 if an executive has any legal infractions and 0 otherwise. Legal infractions include driving under the influence of alcohol, other drug-related charges, domestic violence, reckless behavior, sexual assault, and speeding tickets. *Source:* FindOutTheTruth.com
Non-compliant CEO (traffic)	An indicator set to 1 if an executive has only traffic violations and 0 otherwise. *Source:* FindOutTheTruth.com
Non-compliant CEO (other)	An indicator set to 1 if an executive has any non-traffic legal violations and 0 otherwise. *Source:* FindOutTheTruth.com
Mortgage (millions)	The largest mortgage in dollars the CEO had (listed in millions). *Source:* FindOutTheTruth.com
Wealth	An estimate of the executive's wealth including the value of all stock and option holdings at their firm plus an estimate of non-firm wealth following Dittmann and Maug (2007). *Source:* Execucomp and Dittmann and Maug
Military	An indicator set to 1 if the CEO served in the military. *Source:* Boardex
Female	An indicator set to 1 if the CEO served in female. *Source:* Boardex
MBA degree	An indicator set to 1 if the CEO has an MBA. *Source:* Boardex
Born in recession	An indicator set to 1 if the CEO was born during an NBER defined recession. *Source:* Boardex and NBER
Worked in recession	An indicator set to 1 if the CEO began their career during an NBER defined recession. *Source:* Boardex and NBER
Materialism	An indicator variable set to 1 if the individual owns any of the following assets: vehicle with a list price greater than $75k, boat longer than 25 feet, or home worth more than 2 times the median home prices in the Core Based Statistical Area of his firm's headquarters. *Source:* FindOutTheTruth.com
House purchase price	The purchase price of the CEO home (expressed in millions). *Source:* FindOutTheTruth.com
Loan-to-price ratio	House mortgage over house purchase price. *Source:* FindOutTheTruth.com
Regional Characteristics	
Average income (log)	(Log) of the average household income in the PUMA of the CEO residence. *Source:* IPUMS
Average mortgage (log)	(Log) of the average annual mortgage payment in the PUMA of the CEO residence. *Source:* IPUMS
Fraction employed in Finance	The fraction of people employed in Finance in the PUMA of the CEO residence. *Source:* IPUMS
Home-ownership rate	The home-ownership rate in the PUMA of the CEO residence. *Source:* IPUMS

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Table 1
Correlations of Individual Non-compliance Measures

The table reports correlations of the following variables from the World Value Survey: Claiming government benefits (a response on a scale from 1 to 10 justifying "claiming government benefits to which you are not entitled"); Avoiding fare (a response on a scale from 1 to 10 justifying "avoiding a fare on public transport"); Cheating on taxes (a response on a scale from 1 to 10 justifying "cheating on taxes if you have a chance"); and Accepting a bribe (a response on a scale from 1 to 10 justifying "someone accepting a bribe in the course of their duties"). (***), (**), and (*) indicate statistical significance at the 0.01, 0.05 and 0.10 level, respectively.

	(1)	(2)	(3)	(4)
Claiming government benefits	1	0.442***	0.396***	0.344***
Avoiding fare		1	0.512***	0.384***
Cheating on taxes			1	0.482***
Accepting a bribe				1

Table 2
Country-level Averages

The table reports the average Non-compliance index (the average of the variables: Claiming government benefits; Avoiding fare; Cheating on taxes; and Accepting a bribe, defined in Table 1) and the total number of respondents across all countries in the sample.

#	Country Name	Non-compliance Index	Num. Obs.	#	Country Name	Non-compliance Index	Num. Obs.
1	Czech Republic	3.981	2,053	45	Ghana	2.143	1,515
2	Slovakia	3.880	1,552	46	Hong Kong	2.138	1,248
3	Malaysia	3.626	1,200	47	United Kingdom	2.128	1,032
4	Zambia	3.491	1,485	48	Bulgaria	2.110	2,047
5	Croatia	3.467	1,194	49	Poland	2.104	3,071
6	Moldova	3.398	2,996	50	India	2.075	8,285
7	Philippines	3.367	2,398	51	Dominican Republic	2.072	413
8	Mali	3.295	1,454	52	Nigeria	2.063	5,017
9	Thailand	3.264	1,532	53	Argentina	2.027	5,232
10	Mexico	3.261	8,712	54	Korea	2.025	5,842
11	Ukraine	3.240	3,736	55	El Salvador	2.017	1,233
12	Armenia	3.184	1,990	56	Taiwan	2.008	1,996
13	Latvia	3.128	1,199	57	Romania	2.006	2,948
14	Belarus	3.072	3,091	58	Spain	2.006	5,078
15	Guatemala	3.029	1,000	59	Uruguay	2.002	1,979
16	Azerbaijan	3.002	1,932	60	Finland	2.001	3,002
17	Brazil	2.925	4,424	61	Norway	1.965	2,144
18	Serbia	2.752	4,901	62	Switzerland	1.949	3,825
19	France	2.752	1,000	63	Australia	1.942	4,667
20	Chile	2.689	4,679	64	New Zealand	1.927	2,090
21	Russia	2.677	5,961	65	United States	1.903	3,923
22	Albania	2.673	1,991	66	Canada	1.893	4,084
23	Uganda	2.661	999	67	Colombia	1.865	9,028
24	Slovenia	2.651	2,008	68	Puerto Rico	1.847	1,879
25	Lithuania	2.647	1,009	69	China	1.836	5,407
26	Burkina Faso	2.599	1,434	70	Netherlands	1.833	1,047
27	Kyrgyzstan	2.575	1,043	71	Bosnia	1.822	2,399
28	Estonia	2.534	1,014	72	Indonesia	1.806	3,001
29	Peru	2.528	2,675	73	Italy	1.802	1,005
30	Trinidad &Tobago	2.413	1,002	74	Ethiopia	1.754	1,499
31	Saudi Arabia	2.380	1,487	75	Vietnam	1.727	2,482
32	Andorra	2.371	1,003	76	Japan	1.690	5,535
33	Germany	2.305	4,065	77	Morocco	1.655	3,452
34	South Africa	2.287	13,163	78	Egypt	1.632	6,050
35	Rwanda	2.286	1,506	79	Jordan	1.588	2,411
36	Macedonia	2.263	2,022	80	Tanzania	1.556	1,163
37	Algeria	2.259	1,279	81	Zimbabwe	1.518	1,002
38	Singapore	2.255	1,511	82	Turkey	1.503	2,362
39	Sweden	2.237	3,023	83	Israel	1.425	1,196
40	Venezuela	2.177	2,389	84	Pakistan	1.281	1,996
41	Iran	2.176	5,175	85	Iraq	1.220	4,987
42	Georgia	2.161	3,489	86	Bangladesh	1.189	3,024
43	Cyprus	2.153	1,047				
44	Hungary	2.148	2,080		Average [Total]	2.317	[246,499]

Table 3
Summary Statistics

The table reports summary statistics of the following variables: Non-compliance (the average of the variables Claiming government benefits, Avoiding fare, Cheating on taxes, and Accepting a bribe, defined below); Claiming government benefits (a response on a scale from 1 to 10 justifying "claiming government benefits to which you are not entitled"); Avoiding fare (a response on a scale from 1 to 10 justifying "avoiding a fare on public transport"); Cheating on taxes (a response on a scale from 1 to 10 justifying "cheating on taxes if you have a chance"); Accepting a bribe (a response on a scale from 1 to 10 justifying "someone accepting a bribe in the course of their duties"); an indicator for borrowing activity over the previous year; respondent's age, education, employment, income decile within the country, gender, and marital status; indicators for Protestant, Catholic, Muslim, Hindu, and Jewish religion; the respondent's willingness to tolerate risk and propensity to save (thrift); an assessment for the importance of friends in respondent's life (sociability); interpersonal trust; and self-declared level of happiness. The last column reports the number of countries represented for each variable. Precise definitions of the variables are outlined in the Appendix.

	Mean	St. Dev.	Min	Max	Num. Countries
Non–compliance	2.257	1.714	1	10	86
Claiming government benefits	2.502	2.446	1	10	84
Avoiding fare	2.542	2.438	1	10	83
Cheating on taxes	2.277	2.261	1	10	83
Accepting a bribe	1.773	1.793	1	10	86
Borrow	0.273	0.446	0	1	82
Age	40	16	14	99	86
Age (log)	3.618	0.401	2.639	4.595	86
Education	0.143	0.351	0	1	84
Employment	0.538	0.499	0	1	86
Income	4.577	2.466	1	10	85
Female	0.516	0.500	0	1	86
Married	0.573	0.495	0	1	86
Protestant	0.105	0.307	0	1	86
Catholic	0.257	0.437	0	1	86
Muslim	0.195	0.396	0	1	86
Hindu	0.032	0.176	0	1	86
Jewish	0.007	0.085	0	1	86
Risk taking	5.186	2.975	1	10	51
Thrift	0.363	0.481	0	1	86
Sociability	3.283	0.744	1	4	85
Trust	0.268	0.443	0	1	86
Happiness	3.029	0.752	1	4	86

Table 4
Determinants of Non-compliance

The table reports coefficient estimates and t-values from OLS regressions of individual non–compliance (the average of the variables Claiming government benefits, Avoiding fare, Cheating on taxes, and Accepting a bribe, defined in Table 3) on the following variables: (log of) respondent's age, education, employment, income decile within the country, gender, and marital status; indicators for Protestant, Catholic, Muslim, Hindu, and Jewish religion; the respondent's willingness to tolerate risk and propensity to save; an assessment for the importance of friends in respondent's life (sociability); interpersonal trust; and self–declared level of happiness. Precise definitions of the variables are outlined in the Appendix. All models included country- and year-fixed effects. Standard errors in all models are adjusted for clustering at the country–level. The last two rows report the number of observations and R–squared in each regression. (***), (**), and (*) indicate statistical significance at the 0.01, 0.05 and 0.10 level, respectively.

	(1)	T-Value	(2)	T-Value
Age	–0.482***	(–11.98)	–0.663***	(–11.04)
Education	–0.101***	(–3.82)	–0.037	(–1.05)
Employment	0.014	(0.92)	0.003	(0.13)
Income	–0.005	(–0.86)	0.002	(0.22)
Female	–0.118***	(–10.37)	–0.149***	(–7.77)
Married	–0.112***	(–6.86)	–0.141***	(–8.57)
Protestant	–0.156***	(–3.20)	–0.163***	(–3.98)
Catholic	–0.065**	(–2.14)	–0.127**	(–2.50)
Muslim	–0.153**	(–2.34)	–0.220***	(–2.77)
Hindu	–0.228*	(–1.74)	–0.162***	(–2.94)
Jewish	–0.180	(–0.74)	–0.111	(–0.72)
Risk taking			0.020***	(2.83)
Thrift			0.019	(0.43)
Sociability			–0.032*	(–1.94)
Trust			0.034	(0.67)
Happiness			–0.119***	(–4.08)
Adj. R–squared	12.54		14.60	
Num. Observations	188,394		54,758	

Table 5
Non-compliance and Borrowing Decisions

The table reports coefficient estimates from individual–level OLS regressions of an indicator for respondent's borrowing activity over the previous year on the respondent's non–compliance index (the average of the variables Claiming government benefits, Avoiding fare, Cheating on taxes, and Accepting a bribe, defined in Table 3); (log of) respondent's age, education, employment, income decile within the country, gender, and marital status; indicators for Protestant, Catholic, Muslim, Hindu, and Jewish religion; the respondent's willingness to tolerate risk and propensity to save; an assessment for the importance of friends in respondent's life (sociability); and interpersonal trust. Precise definitions of the variables are outlined in the Appendix. The first two models include country and year fixed effects, while the last two models include (country) x (income decile) and year fixed effects. Standard errors in all models are adjusted for clustering at the country–level. (***), (**), and (*) indicate statistical significance at the 0.01, 0.05 and 0.10 level, respectively.

	(1)	(2)	(3)	(4)
Non–compliance	0.011***	0.014***	0.010***	0.013***
Age	–0.008	–0.025*	–0.011	–0.031**
Education	–0.012**	–0.015**	–0.007	–0.003
Employment	–0.010**	–0.017***	–0.011**	–0.011
Income	–0.018***	–0.012***		
Female	0.013***	0.011**	0.013***	0.011**
Married	0.010**	0.014**	0.009**	0.015**
Protestant	–0.017*	–0.008	–0.012	–0.006
Catholic	–0.012**	–0.013*	–0.010**	–0.011
Muslim	–0.013	0.006	–0.012	–0.003
Hindu	–0.019	–0.013	–0.015	–0.008
Jewish	–0.016	0.012	–0.016	–0.005
Risk taking		0.005***		0.005***
Thrift		–0.001		–0.003
Sociability		–0.011**		–0.009*
Trust		0.001		0.000
Country Fixed Effects	Yes	Yes	No	No
(Country) X (Income) Fixed Effects	No	No	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Adj. R–squared	6.05	7.11	8.11	9.08
Num. Observations	163,747	43,896	163,747	43,896

Table 6
Non-compliance and Borrowing Decisions: Robustness

The table reports coefficient estimates and t-values from individual–level OLS regressions of an indicator for respondent's borrowing activity over the previous year on the respondent's non–compliance index (an indicator for positive response to at least one of the indicator variables Claiming government benefits, Avoiding fare, Cheating on taxes, and Accepting a bribe, defined in Table 3). The models in Panel A are estimated over quintiles based on respondent's income. The models in Panel B are estimated over quintiles based on respondent's risk–tolerance. The models in Panel C are estimated over quintiles of country-level freedom of expression (based on the Voice and Accountability index in the WB Worldwide Governance Indicators). All models also include individual controls and country- and year-fixed effects. Standard errors are adjusted for clustering at the country–level. Precise definitions of the variables are outlined in the Appendix. (***), (**), and (*) indicate statistical significance at the 0.01, 0.05 and 0.10 level, respectively.

	Quintile 1 (Low)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (High)
Panel A: Personal income					
Non–compliance	0.014***	0.009***	0.009***	0.011***	0.005**
T-value	(4.95)	(3.33)	(4.57)	(4.44)	(2.15)
Adj. R–squared	6.91	7.48	6.29	5.89	4.21
Num. Observations	37,800	45,174	43,293	24,942	12,538
Panel B: Personal risk-tolerance					
Non–compliance	0.010**	0.009*	0.023***	0.016***	0.012**
T-value	(2.58)	(1.75)	(4.87)	(3.62)	(2.59)
Adj. R–squared	8.25	5.98	6.58	8.12	8.96
Num. Observations	10,476	7,646	10,829	9,260	7,605
Panel C: Country freedom of expression					
Non–compliance	0.032	0.017***	0.015***	0.007*	0.009**
T-value	(1.18)	(3.31)	(4.97)	(2.08)	(2.56)
Adj. R–squared	3.18	4.14	7.48	6.51	8.60
Num. Observations	30,396	27,947	26,833	35,549	33,380

Table 7
Non-compliance and Borrowing Decisions: Linear Spline Estimation
The table reports coefficient estimates from individual–level OLS regressions of an indicator for respondent's borrowing activity over the previous year on linear splines formed from the respondent's non–compliance index (the average of the variables Claiming government benefits, Avoiding fare, Cheating on taxes, and Accepting a bribe, defined in Table 3) with knots at values of 1.50 and 3.00. The remaining independent variables include (log of) respondent's age, education, employment, income decile within the country, gender, and marital status; indicators for Protestant, Catholic, Muslim, Hindu, and Jewish religion; the respondent's willingness to tolerate risk and propensity to save; an assessment for the importance of friends in respondent's life (sociability); and interpersonal trust. Precise definitions of the variables are outlined in the Appendix. The first two models include country and year fixed effects, while the last two models include (country) x (income decile) and year fixed effects. Standard errors in all models are adjusted for clustering at the country–level. (***), (**), and (*) indicate statistical significance at the 0.01, 0.05 and 0.10 level, respectively.

	(1)	(2)	(3)	(4)
Non–compliance < 1.5	0.030***	0.040**	0.026***	0.032**
Non–compliance >1.5/ <3	0.012***	0.011	0.011***	0.009
Non–compliance > 3	0.007**	0.012**	0.006**	0.012**
Age	–0.007	–0.024*	–0.009	–0.031***
Education	–0.013**	–0.015	–0.008*	–0.003
Employment	–0.010**	–0.017**	–0.014***	–0.011*
Income	–0.018***	–0.012***		
Female	0.013***	0.011**	0.012***	0.011**
Married	0.010**	0.014**	0.008*	0.015**
Protestant	–0.017*	–0.008	–0.007	–0.006
Catholic	–0.012**	–0.013*	–0.001	–0.005
Muslim	–0.013	0.006	–0.001	–0.012
Hindu	–0.019	–0.013	–0.006	–0.007
Jewish	–0.017	0.012	–0.009	–0.004
Risk taking		0.005***		0.005***
Thrift		–0.001		–0.005
Sociability		–0.011**		–0.009*
Trust		0.001		–0.002
Country Fixed Effects	Yes	Yes	No	No
(Country) X (Income) Fixed Effects	No	No	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Adj. R–squared	0.06	0.07	0.08	0.09
Num. Observations	163,747	43,895	163,747	43,895

Table 8
Summary Statistics of CEO Personal and Regional Characteristics

The table reports summary statistics of CEO personal and regional characteristics. Precise definitions of the variables are outlined in the Appendix.

	Mean	St.Dev.	25 %-ile	Median	75 %-ile
A. Personal Characteristics					
Non-compliant CEO	0.24	0.18	0	0	1
Non-compliant CEO (traffic)	0.18	0.14	0	0	0
Non-compliant CEO (other)	0.06	0.05	0	0	0
Mortgage (millions)	1.44	1.74	0.47	0.93	1.59
Wealth (billions)	0.06	0.18	0.01	0.02	0.05
Military	0.10	0.29	0	0	0
Female	0.04	0.20	0	0	0
MBA degree	0.4	0.49	0	0	1
Born in recession	0.35	0.48	0	0	1
Worked in recession	0.19	0.40	0	0	0
Materialism	0.55	0.50	0	1	1
House purchase price	1.83	1.90	0.64	1.14	2.28
Loan-to-price ratio	0.79	0.45	0.52	0.73	0.86
B. Regional Characteristics					
Average income (Log)	11.27	0.38	10.97	11.31	11.55
Average mortgage (Log)	8.69	0.64	8.2	8.68	9.23
Fraction employed in Finance	0.06	0.03	0.04	0.05	0.08
Home-ownership rate	0.58	0.21	0.42	0.60	0.78

Table 9
Personal and Regional Characteristics across CEOs with
Different Degrees of Compliance

The table reports average personal and regional characteristics across CEOs with a legal record (Non-compliant CEOs) and the rest of the sample (Compliant CEOs). Precise definitions of the variables are outlined in the Appendix. (***), (**), and (*) indicate statistical significance at the 0.01, 0.05 and 0.10 level, respectively.

	Non-compliant CEOs	Compliant CEOs	Difference
A. Personal Characteristics			
Number of CEOs	181	585	404
Mortgage (millions)	1.65	1.38	–0.27***
Wealth (billions)	0.05	0.06	0.01
Military	0.12	0.09	–0.03
Female	0.02	0.05	0.03
MBA degree	0.37	0.41	0.04
Born in recession	0.36	0.34	–0.02
Worked in recession	0.13	0.20	0.07**
Materialism	0.48	0.58	0.10**
House purchase price	1.90	1.81	–0.09
Loan-to-price ratio	0.81	0.78	–0.03
B. Regional Characteristics			
Average income (Log)	11.19	11.30	0.11***
Average mortgage (Log)	8.61	8.72	0.11**
Fraction employed in Finance	0.05	0.06	0.01**
Home-ownership rate	0.59	0.58	–0.01

Table 10
CEO Non-compliance and Personal Home Mortgage

The table reports coefficient estimates and t-statistics from individual–level OLS regressions of CEO mortgage amount (in 2010 dollars) on an indicator variable for a Non-compliant CEO (an executive with at least one legal infraction); an indicator variable for a Non-compliant CEO with traffic violations only; and an indicator variable for a Non-compliant CEO with at least one non-traffic violation. All other independent variables include estimated CEO wealth (in billions); indicators for military service, female gender, an MBA-degree, people born during an NBER defined recession, and people who began their career during an NBER defined recession; CEO materialism, an indicator variable set to 1 if the individual owns any of the following assets: vehicle with a list price greater than $75k, boat longer than 25 feet, or home worth more than 2 times the median home prices in the Core Based Statistical Area of his firm's headquarters; and the purchase price of the home (in 2010 dollars) over the 1988-2012 period. Precise definitions of the variables are outlined in the Appendix. (***), (**), and (*) indicate statistical significance at the 0.01, 0.05 and 0.10 level, respectively.

	(1)	(2)	(3)	(4)
Non-compliant CEO	0.513***			
	(3.40)			
Non-compliant CEO (traffic)		0.546***		0.544***
		(3.32)		(3.38)
Non-compliant CEO (other)			0.300**	0.303**
			(2.11)	(2.04)
Wealth	0.449	0.450	0.420	0.450
	(1.50)	(1.51)	(1.40)	(1.51)
Military	−0.335	−0.347*	−0.315	−0.347*
	(−1.64)	(−1.69)	(−1.53)	(−1.69)
Female	0.478	0.477	0.366	0.478
	(1.43)	(1.43)	(1.09)	(1.43)
MBA degree	0.393***	0.404***	0.370***	0.404***
	(3.23)	(3.32)	(3.02)	(3.32)
Born in recession	0.028	0.030	0.034	0.030
	(0.22)	(0.25)	(0.28)	(0.24)
Worked in recession	0.043	0.039	0.003	0.040
	(0.31)	(0.28)	(0.02)	(0.28)
Materialism	−0.088	−0.095	−0.112	−0.095
	(−0.74)	(−0.81)	(−0.94)	(−0.80)
House purchase price (mil.)	0.949***	0.947***	0.954***	0.947***
	(68.58)	(68.38)	(68.79)	(68.32)
Intercept	−0.363***	−0.360***	−0.246**	−0.361***
	(−3.06)	(−3.06)	(−2.14)	(−3.04)
Adj. R–squared	0.87	0.87	0.87	0.87
Num. Observations	760	716	623	760