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The Wages of Sin – Social Stigma Premium in Executive Compensation
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THE WAGES OF SIN—SOCIAL STIGMA PREMIUM IN EXECUTIVE COMPENSATION* 

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We document a significant premium of about 30 per cent in executive compensation in ‘sin’ industries (alcohol, gambling, and tobacco) that is not explained by standard compensation predictors such as higher managerial skill required in sin industries, higher risk of employment contracts, executive entrenchment, or a higher need for political capital at sin firms. Rather, the premium compensates for costs executives bear due to social ‘stigma’ related to work in industries perceived negatively in light of social norms. Correspondingly, the premium increases with social aversion to sin activities and reduces as firms offset negative social perception with image building. Further, to illustrate the type of costs executives in sin industries bear, we show that (1) sin firm executives are less likely to serve as directors on other boards, particularly at more esteemed firms, which suggests they enjoy lower social status, and (2) CEOs from sin firms are less likely to find employment within five years of leaving a sin firm, and if they do, it is at smaller, less prestigious firms. Our results highlight the significant impact violating social norms has on executive compensation contracts. JEL Codes: G11, D71.

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I. INTRODUCTION

This study examines how negative social perception of ‘sin’ industries (alcohol, gambling, and tobacco) affects executive compensation.\(^1\) Social economics literature has long recognized that social norms shape economic behavior, for example, through the effect that social norms have on racial discrimination at workplace (Altonji and Blank 1999; Levitt 2004), and that social norms can affect compensation contracts (Jensen and Murphy 1990). However, measuring the monetary cost of violating social norms is challenging and research of this kind is scarce. We address this literature gap by focusing on the impact social norms have on executive remuneration in sin industries as their products are considered harmful to consumers' physical and mental health, and their consumption is discouraged by society. We focus on executives as they are perceived to personify their firms’ activities (Bower and Weinberg 1988), thus negative social perception is likely to affect them more strongly than other employees. Social disapproval of sin firms can adversely affect public perception of their executives and executives’ social status thus lead to significant personal costs these executives bear. For example, outside board membership is considered an earmark of social status (Kaplan and Reishus 1990) and a source of additional income. If executives are less likely to join outside boards due to the social stigma attached to working in sin firms, they may demand an additional compensation for the social costs their work entails.\(^2\)

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\(^1\) We follow Akerlof (1980) and Hong and Kacperczyk (2009) and define social norms as behavior where utility is dependent on beliefs or actions of other members of the community. Early codification of social norms on consumption of alcohol and gambling are found in Christian, Hindu and Islam texts (Fam et al. 2004). Negative public attitude towards tobacco relates to medical evidence in 1960s on the link between cigarette smoking and cancer. Social stigma stems from addictive and pathological effects sin industry products have on consumers, their families and communities (Anielski and Braaten 2008; Galvin et al. 2004; Gerstein et al. 2004; Grinols 2004; Hudson 2008; Leventis et al. 2013).

\(^2\) Our study is motivated by anecdotal evidence that stigmatized workers demand higher wages to compensate for the social stigma their work entails. For example, Zelizer (1979) describes the case of morgue attendants at hospitals, who earn higher salaries compared to other attendants to compensate for the stigma their work involves. She also
We document a significant premium of approximately $331,300 (around 30%) in annual, inflation-adjusted, compensation of executives in sin industries after controlling for standard predictors of executive remuneration. The premium is paid to CEOs and other executives, and it is present in all components of total remuneration (salary, bonus and other compensation). The premium is significant in all three sin industries (alcohol, gambling, and tobacco) and its magnitude reflects the degree of firm involvement in sin activities—it is largest when the entire firm is classified as belonging to one of the sin industries and smaller when only part of the firm’s activities relate to sin industries. Further, we document that the premium arises in other industries perceived negatively by the society, such as military and firearms, which reinforces our conclusion that the premium is driven by the negative social perception of certain industries.

To support the proposition that the premium reflects compensation for social stigma executives’ work entails, we investigate how the premium varies with the intensity of negative public perception of sin activities. First, the premium is largest in the tobacco industry, which is arguably the most harmful and hence most stigmatized (Anielski and Braaten 2008; Beneish et al. 2008; Gerstein et al. 2004). Second, the premium is higher for sin firms that are also subject to social concerns regarding human rights, local community or employee relations, which likely leads to an even stronger social disapproval. Third, we run a falsification test where we use the per-capita spending on smoking prevention in federal states as a proxy for local electorate’s aversion to smoking and show that the compensation premium increases for tobacco firms headquartered in states that spend more on smoking prevention. Higher spending on smoking prevention should not increase executive premium in alcohol and gambling industries and we find consistent evidence. The falsification test results further corroborate our conclusion that the compensation premium is

quotes the 1974 meeting of the Jewish Funeral Directors of America, which highlighted the difficulty of attracting young people to work in funeral parlours despite large starting salaries.
driven by social aversion. Fourth, we use a quasi-natural experimental design and observe an increase in the premium in tobacco firms around 2002 when Los Angeles jury awarded $28 billion in punitive damages to plaintiffs against Philip Morris, a major tobacco firm, which increased public awareness of the harmful effects of smoking and intensified social disapproval of the tobacco industry.\(^3\) Fifth, we show that ‘sin’ firms that improve their public image, and so alleviate their social stigma, pay a lower compensation premium to their executives. Together, our tests provide consistent support for social stigma driving the premium in executive compensation in sin industries.

The social stigma explanation for the compensation premium suggests that executives working in sin firms bear social costs. Most of these costs are personal thus difficult to measure directly, e.g. ostracism in a local community, however, we are able to provide evidence that sin firm executives are ‘shunned’ by the business community. Specifically, we argue that outside board membership is desirable for an executive as it is an earmark of social status (Kaplan and Reishus 1990). If lower social recognition of executives working in sin firms compromises their social status, we expect them to receive less offers to join other boards. Consistent with this prediction, we show that sin firms CEOs are less likely to serve as board members in other firms. Further, when CEOs hold outside board seats, it is in smaller firms where board membership is less prestigious. Further, we document that CEOs from sin firms are less likely to find employment within five years of leaving a sin firm, and if they do, it is at smaller, less prestigious firms. These

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\(^3\) Punitive damages reduce shareholder wealth, thus we would expect either constant or reduced executive compensation, not an increase. Because our regressions control for compensation risk, higher premium after the court ruling cannot be attributed to higher compensation risk. In a similar way, we document an increase in compensation premium for firearms and military executives around 2005 when we observe a dramatic decline in public support for the Iraq war. In other words, higher social disapproval for the Iraq war associates with a higher compensation premium in firearms and military industries, consistent with the social stigma explanation.
results are consistent with sin firm executives being less desirable as board members and as new employees because of the social stigma they bear.\footnote{The prediction that certain firms do not wish to be associated with executives from sin firms is consistent with the evidence in Hong and Kacperczyk (2009) and Liu et al. (2014) that a significant number of institutional investors avoid investing in sin industries. Further, the number of outside board seats is an indicator of social connectedness of executives, which suggest that sin industries enjoy fewer peer relations compared to other executives.}

We perform a number of robustness tests to ensure our results are not driven by confounding effects or omitted correlated variables. First, we use Demerjian’s et al. (2012) firm-level measure of the average ability of the executive team and show that the compensation premium cannot be attributed to superior managerial skill of executives in sin industries. Second, we provide evidence that the compensation premium does not capture the need for political capital. Specifically, we do not find that the premium is concentrated in firms in need of political capital, which we approximate by firm-level lobbying expenditures. Third, we show that the premium does not compensate risk-averse executives for greater compensation risk in sin firms. Specifically, (1) sin firms pay a premium in all components of compensation, rather than only in the variable component, and (2) there is no evidence of either higher pay-performance sensitivity or performance-related turnover in sin industries (Jensen and Murphy 1990). Fourth, we provide evidence that controlling for quality of corporate governance and for percentage institutional ownership does not affect the compensation premium, which implies that our results do not reflect rent extraction by entrenched executives. Taken together, robustness results consistently support the conclusion that it is social norms that explain the compensation premium at sin firms.

This study offers three important contributions. First, we add to the literature on the determinants of executive compensation. Standard contracting models (Ross 1973; Grossman and Hart 1983; Holmstrom and Milgrom 1987) ignore the effect social context has on managerial compensation contracts, but we show this effect is non-trivial. Mathios (1989) argues that ignoring
the effect of social norms can seriously distort our understanding of compensation policies. However, to date, few studies directly address how social norms impact contracting between economic agents, despite abundant anecdotal evidence suggesting social norms affect compensation (e.g. among hospitals morgue attendants and undertakers). As executive compensation contracts are among most important, and controversial, our study highlights the significant impact social norms have on these contracts. Our study emphasizes the importance of controlling for social norms in research on executive compensation, particularly, since a large proportion of the cross-sectional variation in executive compensation remains still unexplained (Graham et al. 2012; Jensen and Murphy 1990).

Second, our study adds to the debate on the controversially high levels of executive compensation in listed firms (see for example The Washington Post’s ‘Growing Sense of Outrage over Executive Pay’, November 15, 2008). To illustrate, the 2010 U.S. Top Executive Compensation Report lists CEOs in the food and tobacco industry as earning the highest median compensation compared to any other industry.\(^5\) The controversy around compensation contracts in the tobacco industry is reflected by the involvement of the U.S. Supreme Court in the case of the incentive plan for the American Tobacco executives (Rogers v. Hill), which was deemed unjustifiably high and bearing no relation to the value of the executives’ services. Our results suggest that one reason for high compensation in some industries is because of their negative social perception, not due to poor corporate governance mechanisms at these firms.

Third, our study adds evidence to the nascent literature that examines how social norms affect firm economic performance and internal processes (Chong et al. 2006; McGuire et al. 2012; Hong and Kacperczyk 2009; Leventis et al. 2013; Liu et al. 2014). Specifically, we show that one channel

through which social norms affect economic performance is labor contracting: a firm breaking social norms has to offer higher compensation to its employees. Further, as human capital is increasingly the most valuable firm asset (Zingales 2000), human resources management has to become more attune to consequences of how employees are being perceived in broader community.

II. LITERATURE REVIEW AND HYPOTHESES

Social norms reflect rules and standards that guide and constrain social behavior (Liu et al. 2014). Social economics has a long tradition of examining how social norms affect group interactions and labor contracts (Becker 1957; Akerlof 1980). However, only a handful of studies to date examined the impact of social norms on economic activity. Hong and Kacperczyk (2009) investigate the value and ownership structure of sin firms. They find that firms in the tobacco, gambling, and alcohol industries are valued consistently lower than their returns would imply, and that these firms have smaller ownership by norm-constrained institutions, such as pension funds, and less analyst following. Chong et al. (2006), Salaber (2009) and Liu et al. (2014) argue that institutional investors underinvest in sin firms because of the social stigma such investments involve. The evidence on equity underpricing, lower institutional ownership and analyst coverage suggests that violating social norms leads to significant costs for sin firms.

Other examples of how social norms affect corporate behavior include their impact on audit fees and acquisition activity. Leventis et al. (2013) document that sin firms pay higher audit fees despite having higher quality financial reporting. They argue that higher audit fees compensate for higher effort auditors need to devote to sin firms because of increased risk of litigation, regulatory scrutiny and intervention, and negative media exposure. Beneish et al. (2008) document that tobacco firms engage in frequent acquisitions to protect against expropriation and litigation by
public authorities and private claimants. Acquisitions help (1) divest firm excess cash, which is easier to claim then physical assets in the event of an expropriation attempt, and (2) they expand the firms’ political capital and influence, which can reduce the likelihood of expropriation.

A study closest in spirit to ours is Deng and Gao (2013), who examine the effect of the living environment at the firm’s headquarters on CEO compensation. They build on the “disamenity compensation” literature (Power 1980; Myers 1987) and document that firms in polluted, high crime rate, or otherwise unpleasant locations pay higher compensation to their CEOs compared to firms located in more livable locations. They attribute the result to CEOs’ demanding higher compensation for lower quality of life.

We extend past literature by examining how social norms affect executive compensation at sin firms. We focus on executives because they often personify activities of their firms (Bower and Weinberg 1988), thus negative social perception is likely to affect them more strongly than other employees. Specifically, we expect that employment at sin firms adversely affects executives’ personal utility, e.g. they enjoy lower social status associated with less outside board appointments as social stigma makes them less desirable board members. Higher salary at sin firms compensates executives for the negative effects of social stigma. This prediction leads to our first hypothesis:

_Hypothesis 1: There is a premium in executive compensation at sin firms._

We argue that the premium compensates executives for the negative effects social stigma has on personal welfare and social standing. Consistent with this proposition, we argue that social stigma related to employment at sin firms makes their executives less attractive as outside directors in other firms because the negative reputation attached to them could affect boards they join. As outside directorship is considered a mark of social status among executives (Kaplan and Reishus 1990), sitting on fewer outside boards reduces the executive’s personal utility in addition to
financial compensation, which can be non-trivial if an individual holds multiple directorships (Yermack 2006). These predictions lead to two hypotheses:

**Hypothesis 2a:** Sin firm executives sit on fewer outside boards of directors.

**Hypothesis 2a:** Sin firm executives sit on boards of less prestigious boards.

### III. Research Design

This section first describes our measures of executive compensations, then we present our definitions of sin industries, and finally the regression models we use to detect compensation premium in these industries.

#### III.A. Measures of Executive Compensation and Definitions of Sin Industries

We follow prior research (Roulstone 2003; Gabaix and Landier 2008) and use total direct compensation, \( \text{Comp} \), as the main compensation measure. We further decompose total executive compensation into salary (\( \text{Salary} \)), bonus (\( \text{Bonus} \)), and other direct compensation (\( \text{ODC} \)) components to examine if the premium is channeled through all or only specific compensation components.

Our identification of sin firms is similar to Hong and Kacperczyk (2009). Specifically, we define an indicator variable \( \text{Sin} \), which takes a value of one if a firm belongs to alcohol, gambling or tobacco industries, and is zero otherwise. Specifically, firms with SIC codes in the range 2100–2199 are allocated to the alcohol industry. Firms with SIC codes in the range 2080–2085 are in the
gambling industry, and the tobacco industry includes firms with NAICS codes 7132, 71312, 713210, 71329, 713290, 72112, and 721120.6

To sharpen the analysis, we disaggregate the sin group into the three individual industries that constitute Sin. Specifically, the indicator variable Alcohol takes a value of one for firms in the alcohol industry, and zero otherwise. Gambling is an indicator variable for firms in the gambling industry, and Tobacco is an indicator variable for firms in the tobacco industry. The disaggregation allows us to assess whether the effect of social stigma is present in all three sin industries.

III.B. Control Variables

We identify controls from past executive compensation research. Executives tend to earn higher compensation when working for larger and faster growing firms (Gabaix and Landier 2008; Hartzell and Starks 2003). We measure firm size by market capitalization (MV), which is the product of the number of shares outstanding and the closing price at the last trading day of the fiscal year, and by firm total revenue (Sales). We measure firm growth by sales growth (Sales_GR), which is the ratio of total dollar sales for fiscal year t over total sales for the previous fiscal year minus one. We control for firm profitability and return performance because Hartzell and Starks (2003), Engel et al. (2010), and Roulstone (2003) document that executives at better performing stocks earn higher compensation. Return on assets (ROA) is our profitability measure defined as the ratio of income before extraordinary items to book value of assets. Market-adjusted returns (XRET) measure firm return performance and are defined as the difference between the firm’s and the S&P 500 index returns in a fiscal year t.

6 Our results are virtually unchanged when we use the list of sin firms from Kacperczyk available at http://pages.stern.nyu.edu/~sternfin/mkacpere/public_html/sinstocks.pdf. The drawback of the list is that it ends in 2003, which is before the end of our sample period.
Executive remuneration increases with business risk to compensate for (1) higher variability in compensation and (2) higher likelihood of bankruptcy and employment termination, which increases the risk of executive’s compensation (Roulstone 2003). We measure business risk by firm’s standard deviation of monthly stock returns over fiscal year $t$ ($SD_{RET}$). We distinguish between the CEO and other executives since the former can expect to earn on average higher compensation. Specifically, $CEO$ is an indicator variable that takes a value of one if the executive has been CEO in a fiscal year, and zero otherwise. We include an indicator variable for female executives ($Female$) as Bertrand and Hallock (2001) and Carter et al. (2014) find that females are on average paid less than males. We measure executive tenure at the firm ($Tenure$) because more tenured executives earn on average higher compensation (Finkelstein and Hambrick 1989). Finally, we include a set of year dummies ($Year$ effects) to capture trends in the labor market over time.

Detailed variables definitions are presented in Table 1.

We adjust all dollar amounts (compensation, firm size and firm sales) for inflation, with the average value of the Consumer Price Index for 1982–1984 as the baseline. All continuous variables are winsorized at 1% level. As is standard in the literature, compensation and accounting data are for the same fiscal year.\footnote{Our conclusions are unchanged when we use lagged values of independent variables.} Our main model specification is:

$$Comp_t = \beta_0 + \beta_1 Sin + \beta_2 CEO + \beta_3 Female + \beta_4 Tenure + \beta_5 \ln MV_t + \beta_6 \ln Sales_t + \beta_7 Sales_{GR_t} + \beta_8 ROA_t + \beta_9 XRET_t + \beta_{10} SD_{RET_t} + \sum_{k=1}^{20} \beta_{10+k} Year$ effects + u_t$$

(1)
Regression standard errors are dual-clustered at the executive and firm level (Petersen 2009). Because we expect that social stigma affects the three sin industries we examine, we also estimate a variation of model (1) where we use the three sin industries indicator variables.

IV. DATA

Information on executive compensation is from ExecuComp, which covers S&P 1500 constituents. Accounting data is from Compustat, and market data from CRSP. The sample period is 1992–2012 as covered by ExecuComp. Similar to past studies (e.g. Yermack 2006), we exclude financial firms (SIC codes 6000–6999) as the capital structure and compensation rules are different compared to other industries. We drop observations where book equity is negative, as these are typically distressed firms under non-standard management contracts. We further drop observations where total direct compensation is negative for the year. Our final sample includes 146,617 firm-executive-fiscal year observations, which represents 2,520 firms, and 30,638 executives. Of this, there are 1,929 firm-executive-fiscal year observations in sin industries, 325 in tobacco, 830 in gambling and 774 in alcohol (results untabulated).

Table 2 presents descriptive statistics for variables in model (1). Mean and median values are comparable with earlier studies (e.g. Carter et al. 2014). Average total executive compensation in our sample is around $1m, with the interquartile range of $0.844m. Around 1% of observations are executive-firm-years for sin industries, 18% of observations are for CEOs and 6% for female executives. Average executive tenure is close to 5 years, firm market capitalization is around $5.28b with $4.1b in revenue. Average sales growth is 14% and ROA is 9%. Market-adjusted

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8 Previous studies, e.g. Hong and Kacperczyk (2009), do not use dual-clustering, which questions statistical validity of results.
returns calculated over the fiscal year are 8% and their volatility equals 3%. In unreported result, we find that correlations between explanatory variables in Table 2 are on average small, with all correlations comfortably below 0.8, which is the rule-of-thumb level for a potential multicollinearity problem.

[Insert Table 2 around here]

To provide preliminary evidence of a compensation premium in sin industries, Figure 1 plots total compensations for sin and non-sin industries over time. Executives in sin industries earn a significantly higher total compensation compared to other industries over our sample period. As a simple, first-cut test for whether this difference reflects a compensation premium, we highlight two periods following large, highly publicized legal cases against the tobacco industry in 2000 and 2002.\(^9\) During the one year period following the lawsuit, sin firms (1) pay a higher compensation compared to the period before the legal case and (2) the trend in sin executives’ compensation is the opposite to the trend in compensation in other industries. The latter result suggests that higher compensation in sin industries in those periods is unlikely due to market trends and is more consistent with increased compensation required by executives due to increased social stigma.

[Insert Figure 1 around here]

V. REGRESSION RESULTS

Higher compensation in sin industries evident in Figure 1 could reflect normal compensation levels driven by executives’ or firm characteristics, e.g. large size of sin firms. To test the social

\(^9\) Year 2000 includes the high profile Florida smoking case where the jury awarded $23 billion in punitive damages. Year 2002 saw a number of legal cases against tobacco companies, which include David Burton v. R.J. Reynolds's Tobacco (awarded $15 million in punitive damages), Lukacs v. Philip Morris ($37.5 million in damages) and Betty Bullock v. Philip Morris ($28 billion in punitive damages).
stigma explanation, Table 3 reports regression results for model (1), where the indicator variable Sin captures the incremental compensation beyond the normal level that we would expect based on firm and executive characteristics. We document a significant premium in executive compensation in sin firms, which amounts to $331,300 per annum (inflation-adjusted) or around 30% of average total compensation, which is non-trivial. 10 Disaggregating the sin industry into its three components, we find that the premium in the tobacco industry is $480,030, $305,410 in the gambling and $297,620 in the alcohol industry. Hamilton et al. (2002) document higher social aversion to tobacco than the other two sin industries, which explains higher average premium paid to executives in the tobacco industry.

[Insert Table 3 around here]

The latter columns of Table 3 show results for model (1) where we decompose total compensation into salary, bonus and other direct compensation (ODC). Compensation premium is present in all three components and includes a $56,340 premium in base salary (27% of average salary), a $74,290 bonus premium (66% of average bonus) and $192,850 premium in other direct compensation (28% of average other direct compensation). Overall, Table 3 results provide strong support for the existence of the compensation premium in sin industries that cannot be explained by firm and executive characteristics.11

10 In untabulated results, we find that Table 3 results are unchanged when we use two broader definitions of sin industries. Specifically, we define as sin all firms classified in Sin as well as firms with at least one business segment belonging to a sin industry (Hong and Kacperczyk 2009). Further, we define as sin firms classified in Sin, as well as firms with at least one business segment belonging to a sin industry, and firms flagged with ‘alcohol concern’, ‘gambling concern’, or ‘tobacco concern’ in the MSCI ESG STATS database. These alternative definitions of sin firms ensure our results are not driven by misclassification of sin stocks based on SIC and NAICS codes. Further, our conclusions are unchanged when we use the logarithm of executive compensation as the dependent variable, and when we estimate equation (1) using the median regression. These tests show that our conclusions are not affected by outliers.

11 In unreported results, we also find that the premium is paid to both CEOs and other executives, though the CEO premium is larger. This result is consistent with (1) all executives at sin firms being subject to social stigma and demanding higher compensation and (2) higher public visibility of the CEO, which can increase the negative consequences of social stigma, thus the premium. Further, Table 3 results remain unchanged when we split the sample into subperiods.
Coefficients on control variables are consistent with past evidence (Core et al. 1999; Bizjak et al. 1993; Guay 1999). CEOs’ compensation is on average higher compared to other executives, and female executives earn around $50,270 less than males, consistent with the evidence in Bertrand and Hallock (2001) and Carter et al. (2014). Total compensation tends to increase with executive tenure, and for larger firms with high sales growth. Executives are paid more following stronger share price performance and when volatility in abnormal returns is higher. The latter evidence reflects that executives demand higher remuneration to compensate for higher risk their compensation may reduce due to unexpected market shocks. Similar to past research (Core et al. 2008; Maug et al. 2012), we find that executives’ compensation reduces with profitability, which likely reflects a ratcheting effect where profitability sets a benchmark for current performance and pay declines with higher past performance because it resets the benchmark. None of the controls subsume the sin premium we document.

V.A. Sensitivity Tests: Compensation Premium in Other Stigmatized Industries and in Firms with Poor Social Responsibility Scores

This section presents sensitivity tests where we document significant executive compensation premium in other industries that are subject to social stigma and for firms with poor social responsibility scores. These results confirm that executive premium is not confined to the three industries commonly considered as ‘sinful’, but is prevalent in other firms subject to social stigma.

Table 3 results that document significant compensation premium in tobacco, alcohol and gambling industries could be confined just to these three industries. Next, we show that this is not the case. Specifically, we repeat model (1) after including a dummy variable for firms classified in MSCI ESG STATS database as being involved in either production or sale of firearms or military goods, Arms. Flynn et al. (1998) highlight negative public attitude to military production,
particularly involving nuclear weapons because of the association between weapons and death. Vergne (2012) also documents public disapproval for arms manufactures highlighting that they are often referred to as ‘merchants of death’. The first column of Table 4 reports a positive coefficient on Arms when we include it in model (1), consistent with executives in these industries demanding a premium for the social stigma attached to their work.

To sharpen the analysis in Table 4, we also interact the indicator variable for sin industries and for Arms with a dummy variable capturing social concerns. Specifically, SocConcern equals one if the MSCI ESG STATS database identifies a firm as having at least one of the following three social concerns: human rights, employee relations or community concerns. SocConcern captures instances where firms are more likely to be subject to negative social perception. Thus, if social stigma drives the compensation premium, we should observe an increase in the premium for sin firms that also violate social norms. Results in Table 4 show positive coefficients on the two interaction terms Sin*SocConcern and Arms*SocConcern, which confirms that violating social norms leads to an increase in the compensation premium, consistent with our main conclusion.

V.B. A Falsification Test: Smoking Prevention and Executive Compensation

This section describes a simple falsification test that further supports the conclusion that higher compensation in sin industries is due to social stigma. First, we use the variation of model (1) with individual sin industries and include interaction terms between the three sin industries and the amount of money spend on smoking prevention per capita, measured using population counts in 2010, across federal states, i.e. SmokePrevent*Tobacco, SmokePrevent*Gambling and
We use per capita smoking prevention spending in federal states as a proxy for local electorate’s aversion to smoking. We expect that higher per capita spending on smoking prevention reflects higher social aversion towards the tobacco industry hence should associate with higher compensation premium in this industry. However, higher spending on smoking prevention does not necessarily reflect higher aversion to gambling and alcohol, thus interaction terms $\text{SmokePrevent} \times \text{Gambling}$ and $\text{SmokePrevent} \times \text{Alcohol}$ safeguard that the coefficient on $\text{SmokePrevent} \times \text{Tobacco}$ does not pick up time and market trends in compensation.

Column ‘Smoke Prevention’ in Table 4 reports results for model (1) where we include the three sin industries and their interactions with smoking prevention. The coefficient on $\text{SmokePrevent} \times \text{Tobacco}$ is positive, which is consistent with the premium compensating for higher social aversion to smoking. The coefficient on $\text{SmokePrevent} \times \text{Gambling}$ is indistinguishable from zero, and we find a negative coefficient on $\text{SmokePrevent} \times \text{Alcohol}$, consistent with constraints on federal budgets leading to substitution effects in spending across areas related to prevention of substance abuse and addiction (CASAColumbia 2009). In other words, higher spending on smoking prevention can be at the cost of fewer resources devoted to prevention of alcohol abuse and gambling addiction, which can reduce social disapproval of these activities. The falsification test using the interaction terms suggest our main results in Table 3 do not pick up time and market trends in executive compensation.

**V.C. Quasi-Natural Experiments: Compensation Premium Following Philip Morris Lawsuit and a Shift in Attitudes towards Iraq War**

Next, we use two quasi-natural experiments to provide further support for the claim that the

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12 Smoking prevention data is from the Center for Disease Control. The data are available only since 2000, which reduces the sample size to 87,979 observations.
compensation premium we identify is not due to confounding effects. Specifically, we consider the major tobacco lawsuit, the 2002 verdict to award $28 billion in punitive damages to plaintiffs against Philip Morris, as an exogenous shock to the tobacco industry. Punitive damages negatively affect tobacco firms’ wealth, thus any increase in executive compensation after the trial would be difficult to justify on economic grounds. However, since lawsuits increase public awareness of the harmful effects of smoking, thus intensifying social disapproval of the tobacco industry, we can expect social stigma to increase after the trial, which can force an upward revision in the tobacco firms’ compensation premium. To test this prediction, we interact the indicator variable for the tobacco industry with a dummy variable PostTrial that equals one for fiscal years 2003–2004 and zero for fiscal years 2001–2002. We expect that higher social stigma after the lawsuit will increase the compensation premium in the tobacco industry. Because regression (1) controls for compensation risk, higher premium after the court ruling cannot be attributed to higher compensation risk. Further, as tobacco lawsuits do not bear on legislation in other sin industries, the interaction terms between PostTrial and the gambling and alcohol industries should be indistinguishable from zero.

Column ‘Tobacco Lawsuit’ of Table 4 reports regression results for model (1) where we include the three sin industries and their interactions with PostTrial. Following the legal settlement, the premium in the tobacco industry increases, which is consistent with higher social stigma of this industry after the lawsuit. The coefficient on PostTrial*Gambling is indistinguishable from zero, and the coefficient on PostTrial*Alcohol is negative, which reflects generally a downward trend in compensation over time that we observe in Figure 1. Overall, test results confirm the prediction
that social stigma explains higher compensation premium in the tobacco industry following the Philip Morris lawsuit.\textsuperscript{13}

The second quasi-natural experiment reflects changes in attitudes to war in Iraq. Allen et al. (2007) highlight that after the start of the Iraq war, 22\% of Americans considered the intervention ‘a wrong decision’, but by February 2007, the proportion reached 54\%. Consequently, we should observe an increase in executive compensation premium in military and firearms industries as the public support for the war in Iraq declined, which should associate with more negative public attitudes towards military and firearms industries. To test this prediction, we include an interaction term between the dummy variable for military and firearms industries and the period following the shift in attitudes towards Iraq war, $PostIraq$. Specifically, $PostIraq$ equals one for fiscal years 2006–2008 and zero for fiscal years 2003–2005. Column ‘Iraq’ reports results for model (1) when we include $Arms$ and its interaction with $PostIraq$. We document an increase in compensation following the shift in attitudes towards the Iraq war, consistent with the premium compensating for higher social stigma related to work in military and firearms industries.

In unreported results, we repeat model (1) when we include an interaction term between the indicator variable for military and firearms industries and a dummy for periods following publicized school shootings. On April 16, 2007 a 23-year-old student killed 32 students and faculty members at Virginia Tech. The event that became known as the ‘Virginia Tech Massacre’ was the deadliest attack by a lone gunman in U.S. history. We suggest that this tragic event should increase social stigma of firearms industry leading to a higher compensation premium. We code a dummy variable as one for fiscal years 2007–2009 and zero for fiscal years 2004–2006. We find a

\textsuperscript{13} In unreported results we randomly select a sample of non-sin firms subject to lawsuits and examine if executive compensation at these firms changes after the legal trial. We do not find evidence of executive compensation changes for this subsample, which suggests that our result on higher compensation premium in the tobacco industry following the Philip Morris lawsuit does not capture broad changes in compensation at firms subject to lawsuits.
marginally significant positive association with the premium ($p$-value 8.2%), which indicates an increase in executive compensation in firearms industry after the ‘Virginia Tech Massacre’. Together, quasi-natural tests confirm the conclusion that social stigma attached to sin industries explains higher executive compensation in these industries.

**V.D. Reducing Social Stigma through Image Building**

Rather than paying a premium to executives, firms can try to reduce their negative public image, which in return would reduce social stigma. These activities can take the form of public relations management or charity spending. Because we do not have direct measures of the amounts spent on image building by sin industries, we proxy for them by assets-scaled advertising expenses ($Advertising$). Advertising helps build a positive image for the firm and its products, which should reduce negative social perception of the firm. We then interact advertising spending with the sin indicator variable expecting to find a negative coefficient.

The last column of Table 4 report results for model (1) when we include advertising spending and its interaction with the sin industry dummy ($Advertising*Sin$). The coefficient on the interaction term $Advertising*Sin$ is negative, consistent with higher advertising improving firm’s image and alleviating the negative consequences of social stigma, which in return lowers the compensation premium. Together, Table 4 results corroborate the conclusion that the compensation premium in sin firms is driven by the social stigma work in those firms entails.

In unreported results, we consider another sensitivity test to ensure our results pick up compensation premium in sin industries that is due to social costs. Specifically, we examine changes in compensation premium for firms that, through corporate restructuring (e.g. an acquisition), change their SIC classification to include a sin segment. We identify 10 instances of firms that report a new business segment that belongs to a sin industry. For these firms, we observe
an average increase in executive abnormal compensation (i.e. the compensation component that cannot be explained by standard predictors such as firm and executive characteristics) after the change in SIC code. Specifically, abnormal compensation increase from an average of $204,092 measured over two years before the restructuring to an average of $853,745 in two years after the restructuring (t-statistic of 2.84, p-value 0.02). Because abnormal compensation captures changes in firm characteristics due to restructuring, e.g. an increase in firm size after the acquisition, the increase in compensation is consistent with executives being compensated for social costs related social stigma attached to the new business segment.14

V.E. Outside Board Seats and Re-employment of CEOs from Sin Firms

To provide further evidence that the compensation premium in sin industries is because of social stigma, this section examines (1) the likelihood executives from sin firms will sit on boards of directors of other firms and (2) the likelihood CEOs find new employment within five years of leaving a sin firm.

We propose that executives from sin firms are less desirable as board members because of the social stigma they bear. As board seats are an earmark of social status (Kaplan and Reishus 1990), holding fewer seats on outside boards reflects one dimension of personal costs sin executives bear. For this test, we focus on CEOs because they most strongly personify the characteristics of the firms they work for, thus are more likely to experience negative consequences of social stigma. The regression model has the form:

---
14 Our conclusions are qualitatively the same when we identify firms that either report a new business segment belonging to a sin industry or are newly flagged with ‘alcohol concern’, ‘gambling concern’, or ‘tobacco concern’ in the MSCI ESG STATS database. There are 64 instances of such firms and the average increase in abnormal compensation is from $186,951 before the restructuring to $432,799 after the restructuring.
\[
\text{Probability(outside director)}_t = \beta_0 + \beta_1 \text{Sin} + \sum \beta_i \text{CEO characteristics} + \\
\sum \beta_j \text{Firm characteristics} + \sum \beta_k \text{Year effects} + \epsilon_t 
\] 

(2)

where \textit{CEO characteristics} include the indicator variable for females and CEO tenure, and \textit{Firm characteristics} include firm variables from model (1). A negative coefficient on \textit{Sin} suggests lower likelihood of outside directorship among CEOs from sin industries.\(^\text{15}\)

To examine if the likelihood of outside board membership varies across sin industries, we also estimate a variation of model (2) where we include indicator variables for the three sin industries. We expect that CEOs from tobacco firms will have relatively lower likelihood of outside board membership compared to CEOs from other sin industries as the social stigma for this industry is higher.

In addition to a lower likelihood of an outside board membership, we expect that sin executives will sit on less prestigious boards. To test this prediction, we use a variation of model (2) where the dependent variable, \textit{Outside Firm Size}, is the mean market capitalization of the firms where a CEO holds a board seat. We use firm market capitalization as a proxy for firm prestige (Hallock 1997) and expect that sin executives will seat on boards of directors at smaller firms. The model specification is

\[
\text{Outside Firm Size} = \beta_0 + \beta_1 \text{Sin}_t + \sum \beta_i \text{CEO characteristics} + \\
\sum \beta_j \text{Firm characteristics} + \sum \beta_k \text{Year effects} + \epsilon_t. 
\] 

(3)

For completeness, we also estimate model (3) when we include indicator variables for the three sin industries.

\(^{15}\) Executive board membership comes from the IRRC Directors. This sample has 170,000 firm-director-year observations over 1996–2012 and includes 24,600 directors. The cross-section of our main sample and of IRRC Directors produces 23,044 observations, i.e. observations of executives who also serve as directors.
V.F. Regression Results for Outside Board Seats

The first column of Table 5 reports results for model (2), which examines the likelihood of outside board membership. We document that CEOs from sin firms have a lower likelihood of sitting on outside boards, consistent with the stigma attached to these CEOs making them less desirable board members. Splitting the sin dummy into individual industries, we observe that the coefficient on Tobacco is higher compared to the other sin industries (the unreported pairwise differences in coefficients are significant at 5% level). This result is consistent with the prediction that CEOs from the tobacco industry suffer more from social stigma attached to their firms than executives at the other two sin industries.

[Insert Table 5 around here]

Next, we examine if CEOs from sin firms sit on less prestigious boards. For model (3), which examines the average size of firms executives join as outside directors, the coefficient on Sin is not distinguishable from zero. However, for individual sin industries, we find negative coefficients for Tobacco and Gambling. Higher stigma of gambling and tobacco compared to alcohol consumption is consistent with evidence from public perception studies e.g. Horch and Hodgins (2012). This result confirms that executives from the most stigmatized industries sit on less prestigious boards. Together, Table 5 documents that CEOs from sin industries enjoy lower social status associated with board membership, which identifies one type of a personal cost these executives bear.

V.G. Re-employment of CEOs from Sin Firms

Social stigma related to work in sin firms may also affect executives’ future job prospects. If these executives are ‘shunned’ by the business community, they may face higher difficulty finding new employment when leaving a sin firm. To test this prediction, we examine the likelihood CEOs find new employment within five years of leaving a sin firm. The average time for CEOs to find
new employment is between 10 and 12 months, which means that the five-year gap should capture instances where CEOs face difficulties finding a new post.\textsuperscript{16} The specification of the regression model is:

\[
\text{Probability}(\text{New job in 5 year})_t = \beta_0 + \beta_1 Sin2 + \sum \beta_i CEO characteristics + \sum \beta_j Firm characteristics + e_t
\]

where \textit{Sin2} includes firm classified as \textit{Sin} as well as firms with at least one business segment belonging to a sin industry. We use \textit{Sin2} as we do not find instances where CEOs from tobacco, gambling and alcohol industries find employment within five years of leaving the sin firms. \textit{CEO characteristics} include the indicator variable for females, CEO tenure, and executive age. \textit{Firm characteristics} include proxies for the size of the firm the executive is leaving, which are the logarithms of revenue and of market capitalization. We also control for industry concentration using the logarithm of the number of firms in an industry. Executives may find it easier to move within a less concentrated industry.

The last column of Table 5 reports results for equation (4). The negative coefficient on Sin2 confirms that executives from firms associated with sin products are less likely to find re-employment within five years compared to CEOs from other industries. This result is consistent with these CEOs facing poorer job prospects because of the social stigma attached to their previous employment. In untabulated results, we also find that CEOs from sin firms find new jobs at smaller firms, which tend to be the less prestigious firms. This result is consistent with the earlier evidence that CEOs from sin firms sit on less prestigious boards. Together, Table 5 results support the

\textsuperscript{16} The Wall Street Journal’ ‘When Chief Executives Become Job Seekers’ highlights that ‘[L]anding a new CEO role usually takes 10 to 12 months, Ms. Meneley says. Former chiefs can't stay out of the game too long, however: After more than a year out of the corner office, candidates get stale, search experts say.’ http://www.wsj.com/articles/SB10001424052702304585004579419060726896546
prediction that it is social stigma related to work in sin industries that explains the compensation premium in these firms.

VI. ALTERNATIVE EXPLANATIONS FOR THE COMPENSATION PREMIUM

Our tests in Section V identify a significant compensation premium in sin industries. To exclude alternative explanations for the premium, we perform four additional tests. First, we show that the premium does not compensate for higher average ability of executives in sin industries. Second, we document that our results do not capture political capital of executives. Third, the premium does not reflect higher managerial entrenchment and ability to extract a rent through uncompetitive employment contracts. Fourth, we show that managers in sin industries do not face higher income risk, which could explain the compensation premium.

VI.A. Managerial Ability

Our first test examines if the compensation premium in sin industries may reward more talented managers. Though intuitively alcohol, tobacco and gambling industries seem to have fairly simple business models, it is possible boards appoint managers with specialized skills to run these firms. We follow Demerjian et al. (2012) and use their managerial ability score, \( Ability \), to measure executive ability. The score represents the share of firm efficiency not attributable to firm-specific factors, thus likely attributable to the ability of the management team. We then include this measure in model (1) to examine if the compensation premium in sin industries persists once we control for managerial ability.

Column ‘Ability’ in Table 6 reports results for model (1) when we include executive ability among the independent variables. We do not find a positive correlation between \( Ability \) and
compensation, which is likely because we include outputs of ability, such as profitability and return performance, directly in the regression. Specifically, Demerjian et al. (2012) show that their ability measure impacts performance, as measured by changes in stock returns and ROA, but they do not relate their ability measure to executive compensation, which prevents comparison of results. Importantly, controlling for ability, we continue to find a significant premium paid to executives in sin industries. The evidence in Table 6 suggests that the compensation premium in sin industries does not reward higher managerial ability in these firms.

[Insert Table 6 around here]

VI.B. Political Capital

Social stigma may incentivize sin firms to seek political capital as a way of reducing negative consequences of public disapproval. To illustrate, political capital may reduce the risk new legislation will adversely affect performance of sin firms. To build political capital, sin firms may appoint politically-connected executives and the compensation premium may reward political connections, not social stigma. To address this issue, we collect information on lobby spending from The Center for Responsive Politics for sin and non-sin firms in our sample.\textsuperscript{17} Intense lobbying indicates firms with higher need for political capital, i.e. these firms should be more willing to pay higher compensation for executives with political connections. To capture lobbying intensity, we define a ratio of lobbying expenses to net sales, \emph{Lobby}, which we include in model (1).

Column ‘Political Capital’ in Table 6 presents regressions for model (1) when we control for the intensity of lobbying activities. The coefficient on \emph{Lobby} is positive, consistent with firms in need of political capital willing to pay higher compensation as some of the executives they hire

\textsuperscript{17} The data from The Center for Responsive Politics is a common source of information on firm political connections (e.g. Gaikwad 2013; Bertrand et al. 2011).
may contribute valuable political connections. Importantly, controlling for political connections, we continue to find positive coefficient on Sin that is similar in magnitude to that from Table 3. This results suggests that the compensation premium in sin industries we identify in Table 3 is not due to these firms being more likely to hire executives with political connections.

VI.C. Institutional Ownership and Corporate Governance

Higher compensation in sin firms may reflect lower quality internal or external corporate governance at these firms, which allows managers to extract a premium when negotiating their employment contracts (rent sharing). To test the proposition that the premium reflects higher managerial entrenchment, thus bargaining power of executives, we perform two test. First, we repeat model (1) after including a measure of institutional ownership of the stock, InstOwn, which captures quality of external corporate governance. Institutional investors are able to closely monitor managerial performance and influence executive compensation contracts (Gillan and Starks 2000; Hartzell and Starks 2003). Second, we include in model (1) a proxy for the quality of internal corporate governance, CorpGov, which is the difference between corporate governance strengths and concerns provided by the MSCI ESG STATS database. Higher quality corporate governance reduces managerial entrenchment improving competiveness of managerial contracts (Core et al. 1999).

Last columns of Table 6 report results for model (1) when we include the percentage institutional ownership of a stock and the net corporate governance score. We confirm previous evidence that better quality corporate governance mechanisms reduce average executive compensation. Further, controlling for external and internal corporate governance, we continue to find strong evidence on a positive compensation premium in sin industries. These results suggest that the compensation premium is not due to higher bargaining power of executives at sin firms.
Together, Table 6 result suggests that our conclusions on a compensation premium in sin industries are not driven by alternative explanations such as higher managerial ability of executives in sin firms, political capital or lower corporate governance quality.

**VI.D. Compensation and Litigation Risk**

This section provides corroborating evidence that compensation premium is not due to higher compensation risk at sin firms. Our regressions control for business risk, which correlates with remuneration risk, however, we believe more direct tests increase confidence in our main results.\(^{18}\) Specifically, to capture compensation risk, we examine pay performance sensitivity following Jensen and Murphy (1990). For this test, we regress the change in total compensation (\(\Delta \text{Comp}_{t,t-1}\)) on the current and past change in shareholder wealth (\(\Delta \text{Wealth}_t\) and \(\Delta \text{Wealth}_{t-1}\)) measured by inflation-adjusted stock returns multiplied by firm value in the beginning of the year. Further, we interact changes in shareholder wealth with the indicator variable for sin firms (\(\text{Sin}_t \times \Delta \text{Wealth}_t\) and \(\text{Sin}_t \times \Delta \text{Wealth}_{t-1}\)). Higher sensitivity of sin executives’ compensation to changes in shareholder wealth suggest more risky compensation contract. The model has the form:

\[
\Delta \text{Comp}_{t,t-1} = \beta_0 + \beta_1 \text{Sin}_t + \beta_2 \text{Sin}_t \times \Delta \text{Wealth}_t + \beta_3 \text{Sin}_t \times \Delta \text{Wealth}_{t-1} + \beta_4 \Delta \text{Wealth}_t + \beta_5 \Delta \text{Wealth}_{t-1} + \sum \beta_i \text{CEO characteristics} + \sum \beta_j \text{Firm characteristics} + \sum \beta_k \text{Year effects} + \omega_t. \tag{5}
\]

where **CEO characteristics** and **Firm characteristics** are similar to model (2).

Table 7 reports results for model (5). Executive compensation is sensitive to changes in shareholder wealth, as evident by positive coefficients on \(\Delta \text{Wealth}_t\) and \(\Delta \text{Wealth}_{t-1}\), however,\(^{18}\) Rousltone (2003) documents that higher business risk leads to higher variability in compensation and higher likelihood of bankruptcy and employment termination, which indicate higher risk of executive’s compensation.

---

\(^{18}\) Rousltone (2003) documents that higher business risk leads to higher variability in compensation and higher likelihood of bankruptcy and employment termination, which indicate higher risk of executive’s compensation.
the interactions between changes in shareholder wealth and the indicator variable for sin industries are not statistically different from zero. This suggests that compensation risk in sin industries is not different compared to other sectors, which confirms that higher compensation premium in sin industries is not due to higher executive compensation risk.

As an additional test of whether higher compensation risk explains our results, we estimate the likelihood the executive employment contract will be terminated due to poor performance. Sin companies may be more willing to let go of underperforming managers than other industries, which can justify higher compensation. The model specification is

\[
Probability(\text{Stay}_{t,t+1}) = \beta_0 + \beta_1 \text{Sin}_t + \beta_2 \text{Sin}_t \times \Delta \text{Wealth}_t + \beta_3 \text{Sin}_1 \times \Delta \text{Wealth}_{t-1} + \\
\beta_4 \Delta \text{Wealth}_t + \beta_5 \Delta \text{Wealth}_{t-1} + \sum \beta_i \text{CEO characteristics} + \sum \beta_j \text{Firm characteristics} + \\
\sum \beta_k \text{Year effects} + v_t. \tag{6}
\]

where \( \text{Stay} \) is a dummy variable equal to one if an executive retained employment in the company till the following year, and zero otherwise.

The last column of Table 7 presents results for model (6). We confirm that poor performance increases the probability the employment contract will be terminated, consistent with previous research (Coughlan and Schmidt 1985; Jenter and Lewellen 2014). However, there is no evidence that executives at sin firms are more likely to lose their positions compared to executives in other industries. This result suggests that the compensation premium in sin industries cannot be explained by higher risk of the employment contract terminating due to poor executive performance. Together, Table 7 results confirm that the compensation premium in sin firms is not due to higher compensation risk executives in these firms face.
Higher compensation in sin industries may reflect higher executive litigation risk. However, there is little evidence that litigation risk in sin industries is higher. Specifically, previous studies on litigation risk do not include sin firms among industries with higher litigation risk (e.g. Francis et al. 1994; Shu 2000; Johnson et al. 2001; Field et al. 2005; Rogers and Stocken 2005). Rather, these studies consider firms that operate in the bio-technology, computing, electronics and retailing industries as more prone to litigation risk. Lower risk of litigation may reflect active risk management by sin firms and we find supporting evidence. To illustrate, Imperial Tobacco risk management disclosure states that “[T]o date, no tobacco litigation claim brought against the Group has been successful and/or resulted in the recovery of damages. We employ internal and external lawyers specializing in the defense of product liability litigation to provide advice and guidance on defense strategies and to direct and manage litigation risk and monitor potential claims around the Group.” Similarly, British American Tobacco risk management disclosure states that “[O]ur exposure to US litigation was reduced when R.J. Reynolds Tobacco combined with our former US business Brown & Williamson Tobacco in 2004. This means that we no longer have a wholly-owned subsidiary operating in the US market; instead, we have a 42% shareholding in Reynolds American. Reynolds American now manages and co-ordinates Brown & Williamson defendant cases.” Thus, we do not believe that litigation risk can explain our result on a significant compensation premium in sin industries.

VII. CONCLUSIONS

This study examines executive compensation in sin firms. We document statistically and

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economically significant premium in compensation paid to CEOs and other executives employed in tobacco, gambling and alcohol industries. The premium is not related to executive income risk, pay performance sensitivity, managerial ability, political connections or higher executive entrenchment at sin firms. Rather, the premium seems to compensate for social stigma executives at sin firms bear. Consistent with this prediction, we find that the compensation premium in sin industries (1) increases in periods of higher negative social attitude towards sin firms and (2) rewards loss in executives’ social status as proxied by lower number of outside board seats executives from sin firms have. Further tests reveal that the premium is largest in the tobacco industry, which is arguably the most stigmatized (Beneish et al. 2008), and is higher for CEOs than non-CEO executive, which reflects that the burden of social stigma is more sever for CEOs as they personify the characteristics of the firms they work for. Our evidence offers important contribution to the literature on the determinants of executive compensation as it highlights the impact social context has on managerial compensation contracts.

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CASS BUSINESS SCHOOL, CITY UNIVERSITY LONDON.
REFERENCES


<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Executive compensation measures</strong></td>
<td></td>
</tr>
<tr>
<td><em>Comp</em></td>
<td>Inflation-adjusted value of the executive’s total compensation that comprises salary, bonus, restricted stock grants, stock option grants, long term incentives, and other annual compensation.</td>
</tr>
<tr>
<td><em>Salary</em></td>
<td>Inflation-adjusted value of the executive’s salary.</td>
</tr>
<tr>
<td><em>Bonus</em></td>
<td>Inflation-adjusted value of the executive’s bonus.</td>
</tr>
<tr>
<td><strong>ODC</strong></td>
<td>Other direct compensation, which is computed as <em>Comp</em> – <em>Salary</em> – <em>Bonus</em>.</td>
</tr>
<tr>
<td><strong>Indicators for sin industries</strong></td>
<td></td>
</tr>
<tr>
<td><em>Sin</em></td>
<td>A dummy variable equal to 1 if the firm belongs to a sin industry, and zero otherwise. We classify as sin industries with <em>SIC</em> codes 2100 – 2199 (tobacco), <em>NAICS</em> codes 7132, 71312, 713210, 71329, 713290, 72112, or 721120 (gambling), and <em>SIC</em> codes 2080 – 2085 (alcohol).</td>
</tr>
<tr>
<td><em>Tobacco</em></td>
<td>A dummy variable equal to 1 if the firm’s <em>SIC</em> code is 2100 – 2199, and zero otherwise.</td>
</tr>
<tr>
<td><em>Gambling</em></td>
<td>A dummy variable equal to 1 if the firm’s <em>NAICS</em> code equals 7132, 71312, 713210, 71329, 713290, 72112, or 721120, and zero otherwise.</td>
</tr>
<tr>
<td><em>Alcohol</em></td>
<td>A dummy variable equal to 1 if the firm’s <em>SIC</em> code is 2080 – 2085, and zero otherwise.</td>
</tr>
<tr>
<td><strong>Arms</strong></td>
<td>An indicator variable equal to 1 if the firm operations are classified by MSCI ESG STATS as involving either firearms or military production or sales, and is zero otherwise. MSCI ESG STATS started classifying firms operations as involving either firearms or military production or sales in 1999.</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
</tr>
<tr>
<td><em>CEO</em></td>
<td>A dummy variable equal to 1 if the <em>ExecuComp</em> annual CEO indicator equals 1 or the executive has the highest pay for a firm-year and the executive’s job title includes “CEO” or “Chief Executive Officer”, and zero otherwise.</td>
</tr>
<tr>
<td><em>Female</em></td>
<td>A dummy variable equal to 1 if the <em>ExecuComp</em> gender variable is equal to “female”, and zero otherwise.</td>
</tr>
<tr>
<td><em>Tenure</em></td>
<td>The number of years an executive has worked for the company. We re-set the year counter if the executive is re-employed by the company after more than two years.</td>
</tr>
<tr>
<td><em>ln MV</em></td>
<td>Natural logarithm of the market value of equity measured as the number of shares outstanding multiplied by the stock price at the end of the fiscal year.</td>
</tr>
<tr>
<td><em>ln Sales</em></td>
<td>Natural logarithm of net sales for the fiscal year.</td>
</tr>
<tr>
<td><em>Sales_GR</em></td>
<td>Sales growth in past five years. We use at min. 3 years of sales data to calculate <em>Sales_GR</em>.</td>
</tr>
<tr>
<td><em>ROA</em></td>
<td>Return on assets, which is the ratio of operating income after depreciation divided by total assets.</td>
</tr>
<tr>
<td><strong>XRET</strong></td>
<td>Excess stock returns computed as the return on company stock over the fiscal year less the CRSP value-weighted market return.</td>
</tr>
</tbody>
</table>
**TABLE I**

*(CONTINUED)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SD_RET</strong></td>
<td>Standard deviation of daily excess returns calculated over the fiscal year.</td>
</tr>
<tr>
<td><strong>SocConcern</strong></td>
<td>A dummy variable equal to 1 if the MSCI ESG STATS database identifies a firm as having at least one of the following three social concern: human rights concerns (e.g. the company’s operations have been the subject of major recent human rights controversies), employee relations concerns (e.g. employee health and safety and child labor) or community concerns (e.g. the company is involved with a controversy that has mobilized community opposition, or is engaged in other noteworthy community controversies), and is zero otherwise.</td>
</tr>
<tr>
<td><strong>SmokePrevent</strong></td>
<td>Per capita smoking prevention spending in a US state where the company is headquartered.</td>
</tr>
<tr>
<td><strong>PostTrial</strong></td>
<td>A dummy variable equal to 1 for fiscal years 2003 – 2004 and 0 for fiscal years 2001 – 2002 that captures the shift in perception of tobacco firms around 2002 when Los Angeles jury awarded $28 billion in punitive damages to claimants against Philip Morris.</td>
</tr>
<tr>
<td><strong>Advertising</strong></td>
<td>Advertising expenditure scaled by net sales.</td>
</tr>
<tr>
<td><strong>Year FE</strong></td>
<td>Year fixed-effects.</td>
</tr>
</tbody>
</table>

*Notes:* The table reports definitions of variables used in the study.
### TABLE II

**Descriptive Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>STD</th>
<th>Q1</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comp</strong></td>
<td>1033.82</td>
<td>542.25</td>
<td>1440.06</td>
<td>281.75</td>
<td>1125.55</td>
</tr>
<tr>
<td><strong>Sin</strong></td>
<td>1.0%</td>
<td>0.0%</td>
<td>11.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>CEO</strong></td>
<td>18.0%</td>
<td>0.0%</td>
<td>38.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>6.0%</td>
<td>0.0%</td>
<td>23.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Tenure</strong></td>
<td>4.91</td>
<td>4</td>
<td>3.52</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td><strong>MV</strong></td>
<td>5277.25</td>
<td>1149.38</td>
<td>13392.86</td>
<td>430.43</td>
<td>3604.26</td>
</tr>
<tr>
<td><strong>Sales</strong></td>
<td>4132.09</td>
<td>1109.3</td>
<td>8897.13</td>
<td>406.9</td>
<td>3364.43</td>
</tr>
<tr>
<td><strong>Sales_GR</strong></td>
<td>14.0%</td>
<td>10.0%</td>
<td>20.0%</td>
<td>3.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td><strong>ROA</strong></td>
<td>9.0%</td>
<td>9.0%</td>
<td>10.0%</td>
<td>5.0%</td>
<td>14.0%</td>
</tr>
<tr>
<td><strong>Xret</strong></td>
<td>8.0%</td>
<td>0.0%</td>
<td>52.0%</td>
<td>-22.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td><strong>SD_RET</strong></td>
<td>3.0%</td>
<td>2.0%</td>
<td>1.0%</td>
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<td>3.0%</td>
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</table>

*Notes:* The table reports descriptive statistics for variables in equation (1). Variable definitions are in Table 1. All continuous variables are winsorized at 1% level. The number of executive-firm-year observations is 146,617.
TABLE III
Compensation Premium in Sin Industries

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<tr>
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<th>Comp</th>
<th>Comp</th>
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<td>-245***</td>
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<td>56.34***</td>
<td>74.29***</td>
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<tr>
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<td>(4.78)</td>
<td>(7.83)</td>
<td>(4.28)</td>
<td>(3.46)</td>
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<td>Tobacco</td>
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<td></td>
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<td>(4.83)</td>
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<td></td>
<td>(7.14)</td>
<td>(7.13)</td>
<td>(17.55)</td>
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<tr>
<td>ln MV</td>
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<td>422.98***</td>
<td>18.68***</td>
<td>373.68***</td>
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<tr>
<td></td>
<td>(16.47)</td>
<td>(16.45)</td>
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<td>92.63***</td>
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<tr>
<td></td>
<td>(10.14)</td>
<td>(10.15)</td>
<td>(38.37)</td>
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<td>17226***</td>
<td>621***</td>
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<td>(12.80)</td>
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<td>0.564</td>
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Notes: The table reports regression results for equation (1). The dependent variable is either total compensation (Comp) or its components (Salary, Bonus, ODC). Other variables are defined in Table 1. All continuous variables are winsorized at 1% level. t-statistics are reported in parentheses and are based on dual-clustered standard errors at the executive and year level. ***, **, * indicate statistical significance at 1%, 5% and 10% level respectively.
### TABLE IV
Sensitivity tests

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<th>Social Concerns</th>
<th>Smoke Prevention</th>
<th>Tobacco Lawsuit</th>
<th>Iraq War</th>
<th>Image Building</th>
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<td>−3641***</td>
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<td><strong>PostIraq * Arms</strong></td>
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<td>101.59*</td>
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<td>(−1.28)</td>
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<td>Yes</td>
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<td>0.378</td>
<td>0.419</td>
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<td>0.411</td>
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</table>

**Notes:** The table reports regression results for executive compensation. The dependent variable is total compensation. Arms is an indicator variable equal to 1 if firm operations are classified by MSCI ESG STATS as involving either firearms or military production/sales, and is zero otherwise.
TABLE IV
(CONTINUED)

SocConcern is a dummy variable equal to 1 if the MSCI ESG STATS database identifies a firm as having at least one of the following three social concerns: human rights, employee relations or community concerns. SmokePrevent is the per capita smoking prevention spending in a federal state where the company is headquartered. PostTrial is a dummy variable equal to 1 for fiscal years 2003 – 2004 and 0 for fiscal years 2001 – 2002 and captures the shift in perception of tobacco firms around 2002 when Los Angeles jury awarded $28 billion in punitive damages to claimants against Philip Morris. PostIraq is a dummy variable equal to 1 for fiscal years 2006 – 2008 and 0 for fiscal years 2003 – 2005 and captures the shift in perception of military and arms firms around 2005 as a consequence of the Iraq war. Advertising is the advertising expenditure scaled by net sales. Other variables are defined in Table 1. All continuous variables are winsorized at 1% level. t-statistics are reported in parentheses and are based on dual-clustered standard errors at the executive and year level, but for Tobacco Lawsuit and Iraq War, which are estimated using one-way clustering of standard errors on individual executive level. ***, **, * indicate statistical significance at 1%, 5% and 10% level respectively.
### TABLE V

Outside Board Membership and Re-employment of CEOs from Sin Firms

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<th></th>
<th>P(Outside Director)</th>
<th>P(Outside Director)</th>
<th>Outside Firm Size</th>
<th>Outside Firm Size</th>
<th>P(New job in 5 years)</th>
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<td></td>
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<td>coeff/t</td>
<td>coeff/t</td>
<td>coeff/t</td>
<td>coeff/t</td>
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<td>(-6.58)</td>
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<td>-2 838.00</td>
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<td>Yes</td>
<td>No</td>
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<td>0.229</td>
<td>0.131</td>
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</table>

**Notes:** The table reports results for regressions (1) predicting the likelihood a CEO holds a seat on outside board of directors and (2) predicting the likelihood a CEO will find a new job within five years of leaving the previous employer. Outside Director is a dummy variable equal to 1 if a CEO holds at least one seat in other firms' boards and zero otherwise. Outside Firm Size is the mean market capitalization of the firms where a CEO holds a board seat. New job in 5 years is a dummy variable equal to one if a CEO found a new job within five years of leaving the previous employer. Sin2 includes firm classifies as Sin as well as firms with at least one business segment belonging to a sin industry. Other variables are defined in Table 1. All continuous variables are winsorized at 1% level. t-statistics are reported in parentheses and are based on dual-clustered standard errors at the executive and year level. ***, **, * indicate statistical significance at 1%, 5% and 10% level respectively.
<table>
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<th>Alternative Explanations</th>
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<td>Ability</td>
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<td>CorpGov</td>
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Notes: The table reports regression results for executive compensation premium in sin industries when we control for alternative explanations. Ability is the managerial ability score from Demerjian et al. (2012). Lobby is the ratio of lobbying expenses per firm-year scaled by net sales. InstOwn is the total institutional ownership as percentage of market capitalization. CorpGov is the quality of corporate governance measured as the difference between corporate governance strengths and concerns provided by the MSCI Stats database. Other variables are defined in Table 1. All continuous variables are winsorized at 1% level. t-statistics are reported in parentheses and are based on dual-clustered standard errors at the executive and year level. ***, **, * indicate statistical significance at 1%, 5% and 10% level respectively.
### TABLE VII
Risk of Executive Remuneration

<table>
<thead>
<tr>
<th></th>
<th>$\Delta$Comp</th>
<th>P(Stay)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\text{coef/t}$</td>
<td>$\text{coef/t}$</td>
</tr>
<tr>
<td><strong>Intercept</strong></td>
<td>150.75</td>
<td>6.52***</td>
</tr>
<tr>
<td></td>
<td>(1.17)</td>
<td>(84.88)</td>
</tr>
<tr>
<td>$d\text{Wealth}(t) \times \text{Sin}$</td>
<td>$-0.22$</td>
<td>$0.00$</td>
</tr>
<tr>
<td></td>
<td>$(-1.50)$</td>
<td>$(0.27)$</td>
</tr>
<tr>
<td>$d\text{Wealth}(t-1) \times \text{Sin}$</td>
<td>$0.03$</td>
<td>$-0.00$</td>
</tr>
<tr>
<td></td>
<td>$(0.23)$</td>
<td>$(-0.96)$</td>
</tr>
<tr>
<td>$d\text{Wealth}(t)$</td>
<td>$0.19***$</td>
<td>$0.00***$</td>
</tr>
<tr>
<td></td>
<td>$(5.59)$</td>
<td>$(7.31)$</td>
</tr>
<tr>
<td>$d\text{Wealth}(t-1)$</td>
<td>$0.15***$</td>
<td>$0.00***$</td>
</tr>
<tr>
<td></td>
<td>$(4.06)$</td>
<td>$(6.71)$</td>
</tr>
<tr>
<td>$\text{Sin}$</td>
<td>$-8.07$</td>
<td>$0.01$</td>
</tr>
<tr>
<td></td>
<td>$(-0.11)$</td>
<td>$(0.25)$</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Year FE</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>115,574</td>
<td>166,832</td>
</tr>
<tr>
<td><strong>Adjusted R2</strong></td>
<td>0.020</td>
<td>0.052</td>
</tr>
</tbody>
</table>

**Notes:** The table reports regression results for Equations (5) and (6) that examine the impact of compensation risk on executive remuneration and the likelihood the executive employment contract will be terminated due to poor performance. $\Delta\text{Comp}$ is the change in executive total compensation. $\text{Stay}$ is a dummy variable equal to 1 if an executive retained employment in the company till the following year, and zero otherwise. $\Delta\text{Wealth}(t)$ is the change in shareholder wealth defined following Jensen and Murphy (1990) as $r(t) - V(t-1)$, where $r(t)$ is the inflation-adjusted rate of return on common stock for a fiscal year $t$, and $V(t-1)$ is the firm value at the end of the previous year. $\Delta\text{Wealth}(t-1)$ is the previous year $\Delta\text{Wealth}$. Other variables are defined in Table 1. All continuous variables are winsorized at 1% level. $t$-statistics are reported in parentheses and are based on dual-clustered standard errors at the executive and year level. ***, **, * indicate statistical significance at 1%, 5% and 10% level respectively.
FIGURE I
Total Compensation in Sin and Non-sin Industries over Time

The figure shows the average total compensation (Comp) in sin firms (Sin) and other firms (non-Sin) over time. Blue boxes indicate periods following highly publicized lawsuits in the tobacco industry. Year 2000 includes the high profile Florida smoking case where the jury awarded $23 billion in punitive damages. Year 2002 saw a number of legal cases against tobacco companies, which include David Burton v. R.J. Reynolds Tobacco (awarded $15 million in punitive damages), Lukacs v. Philip Morris ($37.5 million in damages) and Betty Bullock v. Philip Morris ($28 billion in punitive damages).