Charles University in Prague

Faculty of Social Sciences
Institute of Economic Studies

MASTER'S THESIS

Executive Compensation in Firms Producing Addictive Goods

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Declaration of Authorship

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Plzeň, December 15, 2014

Michael Janský
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Signature

Acknowledgments

This thesis originated from a research project of Jiří Novák, M.Sc., Ph.D., for which Bc. Michael Janský was a research assistant. Some of the results presented in this Thesis coincide with a concurrent research article Novak and Bilinsky (2014). For the purpose of this thesis Michael Janský computed all the reported results independently, he has developed the way of interpreting and presenting the results and he has written the thesis on his own only receiving standard supervisor feedback from Jiří. Besides others, the sections on the institutional ownership, the executive age, and executive migration patterns are based on Michael's original ideas.

I would like to thank my supervisor, Jiří Novák, M.Sc., Ph.D. Without his guidance, advice, and support this work would not have been possible. I am also grateful to Lucie Mišičová and Viktoryia Naumova for insights about the tobacco industry, and to Liliana Kowalczyk of the University of Warsaw for a valuable insight. I would like to thank my parents, Eva Janská and Michael Janský, sr., for their patience and support.

All remaining errors are my own.

Abstract

This thesis investigates executive compensation, turnover and migration patterns in firms that produce addictive goods (tobacco, alcohol, and gambling). Previous research has identified costs associated with the production of harmful goods specific to these industries. Consistent with this stream of research, I find increased executive compensation in tobacco, alcohol, and gambling firms. This finding seems to be driven by industry specific characteristics, rather than by executives' traits or by the 'traditional' determinants of executive compensation. Executive migration patterns and the effect of job change on compensation indicate that the higher compensation is not caused by executives' attributes well suited for these firms' specific needs, by executives' contribution to value-creating activities, or by other executive-specific characteristics. Rather, the higher compensation seems to reflect a payment to executives for having to bear society's aversion to or displeasure with these harmful goods, and those who produce them.

JEL Classification	D71, G34, J63, M12
Keywords	executive compensation, sin firms, social norms, executive turnover, outside directorships

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excluding:	*front matter, title, abstract, tables, figures, page headers, Bibliography*

Abstrakt

Tato diplomová práce se zabývá odměňováním a vzorci migrace mezi pracovními pozicemi manažerů firem, jež vyrábí zboží a služby vytvářející závislost (tabákové výrobky, alkohol a hazardní hry). Předchozí výzkum odhalil náklady spojené s výrobou škodlivého zboží, jež jsou specifické pro tyto průmysly. Konzistentně s tímto proudem výzkumu nacházím zvýšené odměny manažerů v tabákových, alkoholových a hazardních firmách. Tento výsledek se zdá míti původ v charakteristice průmyslu, spíše než ve vlastnostech manažerů či v „tradičních" determinantách odměňování manažerů. Vzorce migrace manažerů mezi pracovními místy a vliv změny zaměstnání na odměny naznačují, že vyšší odměny nejsou způsobeny zvláštními vlastnostmi manažerů, jež by specificky tyto firmy potřebovaly, a stejně tak nejsou způsobeny příspěvkem manažerů k vytváření přidané hodnoty nebo jinými vlastnostmi specifickými pro manažery. Namísto toho se zdá, že tyto vyšší odměny reflektují úplatu manažerům za to, že tito musejí snášet averzi či nespokojenost společnosti s těmito škodlivými výrobky, a tedy s těmi, kteří je vyrábějí.

Klasifikace	D71, G34, J63, M12
Klíčová slova	odměňování manažerů, „hříšné" firmy, společenské normy, výměna managementu, dozorčí rady

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Contents

List of Tables

List of Figures

Acronyms

AOCN	Adjusted Outside Connections Network
CEO	Chief Executive Officer
CPI	Consumer Price Index
CUSIP	Committee on Uniform Securities Identification Procedures
CV	Coefficient of Variation
FE	Fixed Effects
FF49	Fama-French 49 industries
IAS	Industry Attractiveness Score
IO	Institutional Ownership
IPO	Initial Public Offering
MB	Market-to-Book ratio
NAICS	North American Industry Classification System
ODCN	Outside Directorial Connections Network
OSPD	Outside Switch Premium Difference
PP	Pay Performance sensitivity
RCS	Residual Compensation Share
ROA	Return On Assets
SIC	Standard Industry Classification

Master's Thesis Proposal

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Defense Planned:	February 2015

Proposed Topic:

Executive Compensation in Firms Producing Addictive Goods

Topic Characteristics:

This thesis will investigate the compensation of executives of sin firms – firms which produce goods or services that society may disapprove of. In particular, I will investigate alcohol, gambling, and tobacco firms. I hypothesize that such firms pay an idiosyncratic premium to their executives that cannot be linked to any particular performance, skill, or other quantifiable benefit rendered to the firm by the executive. I further hypothesize that this premium is essentially a 'pay-off' for the executives having to bear a 'stigma' of association with a firm that violates social norms.

I do not form a hypothesis as to the precise nature of this stigma, but I suggest it may be either personal (objections to moral implications of executive's work), social (society's negative perception of executive because of nature of employer) or public relations-related, career-related (handicap in future or parallel career pursuits because of nature of employer), or any combination of the above.

Prior research suggests that sin firms face costs associated with aversion to their activities generated because those activities violate social norms (despite being legal). Hong and Kacperczyk (2009) find that sin firms trade at roughly a 250 basis point premium in the stock market and link this to their lower ownership share by norm-constrained institutional investors (e.g. pension funds). They hypothesize that since such investors are more sensitive to public perception (and thus, social norms) in choosing their investments, they tend to avoid sin firms to avoid the 'stigma' of association with morally objectionable activities. Their results support this theory.

Other 'costs of sin' are implied by Beneish et al. (2008), who find that tobacco firms use diversifying acquisitions to mitigate the risk of public expropriation, and that this increases their market value – where in most firms diversifying acquisitions have been found to be value-destroying. Leventis and Hasan (2012) find that sin firms pay higher fees for external audit, which are presumably related to either the firm's or the auditor's efforts to 'insure' themselves against an expected larger-than-normal impact of a potential reporting problem, as these may be exacerbated by *ex ante* bad perception of sin firms.

Maug et al. (2012) find that executive compensation is sensitive to firm prestige, as CEOs of firms considered 'prestigious' (by professionals and the public) are content with lower compensation (although they only give up this compensation when owner

representation is strong enough to 'make them'). The authors believe that the CEOs essentially see themselves as recipients of an intangible 'prestige' asset gained by association with the prestigious firm, and they value this asset enough to forgo a part of their financial compensation in return for receiving it.

According to the cited research, sin firms may face a variety of specific costs linked to the violation of social norms that their business represents. Also, executives appear to be sensitive to the 'reputation' of their firm, suggesting that firm reputation transfers onto them by association. Based on these two observations, I believe sin firm executives may suffer from a 'stigma' transferred onto them from the firms they work for, and that they may require recompense from these firms.

Evidence supporting this claim would have twofold value: First, it would identify another channel through which the violation of social norms may affect business. This in turn would strengthen the extant results in the literature, which suggest that violation of social norms, even if these are not codified as law and thus may be violated without reprisal from public authority, results in 'punishment' through other channels. The fact that these channels are integral to the business environment and do not require active enforcement from the state could additionally have important implications for policymaking in the areas of regulation and public intervention.

Second, the identification of a previously unknown determinant of executive compensation would improve our understanding of the executive labour market. This could be further expounded on in future research, which could attempt to generalize findings about executives to the entire labour force, thus addressing an issue which has significantly broader relevance on the one hand, and a much larger potential cost impact on firms on the other.

Conversely, the primary limiting factor of the potential impact of the results of this thesis is the small absolute share of firm costs that executive compensation represents, and the niche position that the executive labour market occupies both in academic interest and in the sheer volume of value that passes through it. While this does not diminish the importance of the results on a conceptual level, or of their impact on our understanding of executive compensation, it does limit the value of the contribution of this research towards quantifying the total 'cost of sin', as well as towards identifying forces with broad impact on the economy and society in general.

Hypotheses:

1. Sin firm executives receive a premium in their total compensation, which cannot be attributed to known executive compensation determinants.
2. The premium in sin firm executive compensation scales with the level of firm involvement in sin activities and is highest in the tobacco industry.
3. Sin firm executives are less active as outside directors in other firms.

Methodology:

As there are few, if any, generally-accepted theoretical models of executive compensation, I will rely on the approaches of prior empirical research that has achieved acclaim in the academic community. I plan to model executive compensation as a linear stochastic relationship, with the choice of known determinants informed by the work of, among others, Hartzell and Starks (2003), Roulstone (2003), and Gabaix

and Landier (2008), as well as the recent work of Maug et al. (2012), which investigates an issue closest to my own among studies using a similar methodology. I will use variable interaction (i.e., permitting a variable to have a different slope over a section of the sample through the use of a dummy variable that equals the parent ('main effect') variable over the subsample and is zero elsewhere) in situations where I wish to assess whether the impact of a variable is different in sin firms than elsewhere.

I will use a panel sample consisting of executives covered by the ExecuComp database, my primary source of compensation data. This sample covers most executives listed in the compensation section of the proxy statements of S&P 1500 firms, over the time period 1992-2012. I will use year fixed effects to account for time effects in the data, and I will adjust all data relating to monetary value (salaries, returns, sales, etc.) for inflation using the U.S. CPI. In order to compensate for possible unobserved correlations in the data, I will use standard error clustering by firm-executive combination. This allows regression residuals for any given executive in any given firm to be correlated (i.e. there can be an unobserved effect specific to the firm-executive combination in the data) without compromising the estimate; residuals between different clusters (here the firm-executive combinations) are assumed to be independent (Petersen, 2009). Petersen also notes that clustered standard errors are robust to heteroskedasticity (*ibid* p. 438, footnote).

One particular theoretical model which I borrow is the Jensen and Murphy (1990) approach for estimating pay performance sensitivity, which I adjust to admit an interacting dummy variable for sin firms and estimate with the abovementioned error clustering, but otherwise do not modify. The model is a simple linear regression model without fixed effects.

I will use probit regression to estimate binary outcomes (e.g., whether or not an executive is also an outside director in another firm). On occasion, I also plan to employ simple frequency and quantitative statistics (for example, the mean compensation of executives by industry, or the number of executives who leave a given industry for a job elsewhere), mostly in a support role.

Outline:

1. Introduction
2. Literature & Hypotheses
    a. The Cost of Sin
    b. The Determinants of Executive Compensation
    c. Executives as Outside Directors
3. Method
4. Data
5. Results
    a. Sin Premium
    b. Behaviour of Premium in Job Switches
    c. Retention of Executives
    d. Robustness Checks
6. Conclusion

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Supervisor

1. Introduction

The impact of social norms on markets has been gaining in popularity as a research topic in the past several years, and there is a growing body of evidence that social norms matter for business even in situations which written law does not directly impact (see e.g. Glaeser and Scheinkman, 2003). Why should the impact of social norms on business be of interest? In general, even assuming that the profit motive and economic rationality are the best tools available for allocating resources and the benefits of their use, the outcomes these forces produce may be socially sub-optimal. Even if maximum benefits are gained for actively participating agents, externalities may be caused to third parties that may even outweigh those benefits in the overall calculus of 'social welfare' (see e.g. Coase, 1960, for the archetype of this argument). Such issues then often become the focus of debates about the role of politics, public administration, and the state in the economy. As a result, numerous schools of thought in economics seek to resolve these issues without recourse to *ad hoc* public interventions, which are often seen as inefficient and potentially counterproductive (e.g. Laffont, 1994; Williamson, 2000).

It is therefore an interesting research question whether society imposes (evolves?) endogenous, informal norms which serve to curb negative externalities, particularly those severe enough to outweigh the benefits of their generating activities. One may consider such norms part of 'morality' or 'ethics', possibly the 'ethics of business'. Research which examines whether unwritten and not formally enforced norms can impact markets can potentially shed light on whether and how social pressure can restrain 'unwanted' economic tendencies. On a side note, it is important to distinguish the kind of social norms discussed from law. The assumption is that activities banned by law do not occur in a normal economy; they are therefore not the subject of this inquiry. The social norms examined in this thesis are unwritten and often quite informal, and they concern activities which are legal in the letter of the law. Typically, these activities are also the natural outgrowth of the system's tendencies (such as the aforementioned economic rationality and the profit motive), rather than 'pathological' (like for example fraud). The financing of profitable and legal, but 'morally questionable' operations is one of such tendencies. Results in this field can potentially have important implications for our understanding of the economic force of informal institutions, as well as for policy decisions. Public interventions in the economy are expensive and may not map well onto real-world situations, in extreme cases even exacerbating the problems they were meant to solve, or simply

shifting them somewhere else (e.g. Laffont, 1994; Williamson, 2000). If an economic force endogenous to the system exists to penalize socially undesirable operations over and above the impact of the law, policymakers might feel less compelled to simulate such forces with artificial regulatory constructs or interventions. That would be in line with the current mainstream thinking and research in economics of regulation, which generally recommends that solutions endogenous to the system be sought whenever possible (Laffont, 1994; Williamson, 2000).

This thesis aims to show that social norms have a measurable impact in executive compensation, by finding support for the hypothesis that there is a premium in the compensation of executives of sin firms – firms which produce goods or services that violate social norms – and that this premium is linked to sin firms' violation of said norms and is essentially payment to the executives for bearing the moral stigma of association with such activities. I use the definition of sin firm which encompasses firms in the alcohol, gambling, and tobacco industries. These firms' activities violate social norms in the sense that their products, while legal, are considered to be vice and known to be harmful to consumers' physical and/or mental health, and may also cause addiction in their consumers (e.g. Hong and Kacperczyk, 2009). Although other industries such as arms manufacture and nuclear power are sometimes included in the definition of 'sin firms' (e.g. Leventis and Hasan, 2012), I confine my analysis to this 'triumvirate of sin', which is the narrowest group normally discussed and the most homogeneous in the reasons for their moral objectionability.

The topic of sin firms has emerged several times in recent research on the economic impacts of social norms. As a prime example, Hong and Kacperczyk (2009) have shown that sin firms are shunned by norm-constrained institutional investors – for example, pension funds – presumably because these investors do not wish to be associated with the negative perception that sin firms' activities generate. The authors find that these firms outperform the market by a significant margin, suggesting that they trade cheaper than their 'traditional' valuation characteristics would imply. Hong and Kacperczyk believe that the documented 'shunning' of sin stocks results in their reduced liquidity and arbitrage possibilities (as a part of the market avoids them), and thus allows idiosyncratic risks to enter their valuations, as they cannot be fully diversified away. This work represents compelling evidence that social norms can influence the cost of equity.

I look at executive compensation to determine whether social norms can also lead to increased operating costs for sin firms, in particular personnel costs. I thus hope to identify additional mechanisms through which social norms can influence business, which could improve our understanding of the mechanisms linking social norms to the economy. Executive compensation is a good first step to measure social norms' impact on personnel costs: A large portion of the cross-sectional variation in executive compensation remains unexplained (Graham et al., 2012), and investigating the impact of social norms on the compensation of top executives can improve our understanding of the driving forces of executive compensation and the principal-agent relationship. In a broader context, understanding of social norms' impact on executive compensation can serve as a stepping stone to analyzing their impact on compensation in general. As total employee compensation forms an important part of most firms' operating costs, the implied cost-of-labour impact of social norms could potentially be significant, even if the presently investigated impact on compensation of executives is quantitatively small compared to a firm's total costs.

There is some evidence already in place linking social norms to executive compensation: Maug et al. (2014) show that public perception of a firm can be a relevant factor in the compensation of its executives. CEOs of companies ranked as 'prestigious' require less compensation than other firms' CEOs, controlling for firm characteristics. The authors find evidence that this is because the social status garnered by working for a prestigious firm has value to the CEOs, who are willing to forgo a part of their financial compensation in exchange. Collating this with the previously mentioned findings by Hong and Kacperczyk (2009), there is evidence that (i) sin firms are disadvantaged (at least) in the stock market, most likely due to their public perception, and (ii) that public perception matters to top executives and is reflected in their compensation demands. It seems a logical extension to assume that if the stigma in sin firms which causes some investors to avoid them, as suggested by prior research , matters to executives in some way (e.g. personally, socially, in terms of career, etc.), they should demand to be compensated for having to bear it. (I assume the effects of the stigma in the stock market and in executive compensation to be parallel rather than causally related.) In a related issue, it has been described before that the characteristics of executives' firms (particularly their profitability) are important for executives' prospects of receiving seats as outside directors on the boards of other companies (Kaplan and Reishus, 1990). If sin firms are shunned as seen in the stock market, their executives might also be less desirable as outside directors; presence of such an effect

would support the hypothesis that the sin stigma affects executives at all, and may even be another reason for executives to demand compensation for working in sin firms.

I identify a significant premium in the compensation of sin firm executives, after controlling for a number of firm-level determinants of executive compensation such as firm size, growth, and profitability. The premium, amounting to approximately 30% of total sin firm executive compensation, is consistent across several components of compensation and robust to a more sensitive definition of sin activity involvement, and statistically unlikely to be the result of random selection among industries with idiosyncratic premia. Further supporting the hypothesis that the premium is related to sin activities is the fact that the premium is the largest in the tobacco industry, which is arguably the most disapproved-of of the three (Beneish et al., 2008; Hong and Kacperczyk, 2009), followed by the alcohol and gambling industries. Very similar results can be found in the concurrent research by Novak and Bilinsky (2014). Consistent with predictions of the hypothesis that the cause of the premium is a social stigma in sin firms, I find that the share of compensation unexplained by firm and career characteristics of executives who switch jobs between sin firms and non-sin firms is higher while in the sin firm, suggesting that there is an element of executive compensation specific to sin firms and not to the executives serving there. As I also directly identify a premium in sin firm executive compensation, I assume the two effects overlap, which implies that the premium is specific to sin firms, rather than to executives.

To address the alternative possibility that the source of the premium is a quality or trait of the executives themselves, but such that it is only valuable or more valuable to sin firms, I use the prediction of this latter hypothesis that such a trait would make the executives uniquely valuable to sin firms, and sin firm employments uniquely valuable to the executives (i.e., matching would be expected to occur); this could then be expected to lead to higher than normal retention of sin executives. I find two results that contradict this prediction: Sin executives have a shorter tenure than other executives, and more executives leave sin firms for another industry than join them from a different industry. Consistent with Novak and Bilinsky (2014) I also document that sin firm executives are less active as outside directors, even though outside directorships may be a concrete example of a trait uniquely valuable to sin firms: The network of business connections acquired through membership of boards of directors of other firms may be more valuable to sin firms because it may help shield a firm from public expropriation (lawsuits, regulation, etc.), which in turn appears to be a more common problem for sin firms (Beneish et al., 2008). Some

support for the hypothesis that sin firms value such connections can be found in results suggesting that sin firms seem to value connections in their own directors. This in turn makes the low directorial activity of their executives paradoxical, which leads me to believe that the 'shunning' hypothesis discussed earlier applies to sin firm executives, i.e. that sin firm executives are less desirable as outside directors because of the poor public perception of their 'home' firms, which is consistent with the conclusion drawn by Novak and Bilinsky (2014) based on the results that they present.

I also test for several other alternative explanations of a compensation premium and find them unlikely. Sin firm executive compensation does not exhibit signs of greater income risk: the part of the variability of compensation (measured by the coefficient of variation) unexplained by firm characteristics is unable to explain or even significantly affect the compensation premium, and the same is true of the proportion of compensation decreases over increases. Pay performance sensitivity also does not account for the premium: Using the method of Jensen and Murphy (1990) I find a lower pay performance sensitivity in sin firms, as well as a lower tendency of executives to leave after bad firm performance. As for executives' ability, I employ the firm-level executive ability measure ("MA Score") recently developed by Demerjian et al. (2012) and I also construct an estimate of executives' individual contributions to firm stock return. I find that either of these also does not explain the premium. Novak and Bilinsky (2014) have similar results on income risk, pay performance and pay dismissal sensitivity, and executive ability. Furthermore, I find that the lower institutional ownership described in sin firms by Hong and Kacperczyk (2009) does not appear to be related to the premium.

The combination of the discussed results places the following constraints on the nature of the premium I observe in sin firms: It does not seem to be caused by 'normal' (unrelated to sin status) firm properties (size, profitability, growth, etc.), as my regression method controls for these. It also does not seem to be related directly to executives (e.g. their skills or traits). My results also do not conform to predictions based on the hypothesis of a quality of executives that is only valuable or more valuable in sin firms. In synthesis, my results suggest that the cause of the premium is an idiosyncratic property of sin firms unrelated to their 'traditional' valuation properties or to any trait of the executives themselves. While I am unable to show directly that the cause of the premium is the social stigma I hypothesize (and others find support for) in sin firms, my findings on the lower directorial activity of sin executives also correspond to predictions of the stigma hypothesis. This hypothesis implies that because directorial seats

are related to success and professional standing as an executive, and possibly also a mark of social status (Kaplan and Reishus, 1990; Maug et al., 2014), stigmatized executives of sin firms should receive them less often. This suggests that sin firm executives do bear a stigma. Given the fact that public perception seems to matter for executive compensation (Maug et al., 2014), I believe it is likely that the premium I observe in sin firm executive compensation is caused by the stigma which arises from sin firms' violation of social norms (the very trait that makes them 'sin' firms in the first place).

The remainder of this thesis is organized as follows: Chapter 2 reviews prior research and develops hypotheses, Chapter 3 presents the research design, Chapter 4 describes data, Chapter 5 discusses results, and Chaper 6 concludes.

2. Literature and Hypotheses

2.1. The Cost of Sin

The impact of social norms on business in sin firms – the 'cost of sin' – has seen several recent contributions in literature. Hong and Kacperczyk (2009) examine the stock returns and ownership structure of sin firms, and find that firms in the tobacco, gambling, and alcohol industries are valued consistently cheaper than their returns would imply. They estimate that sin firm stock earns a premium of 250 basis points in annual return over comparables, an economically significant amount. They also find that sin firms exhibit lower ownership shares of norm-constrained institutions (e.g. pension funds) and a lower analyst following, suggesting their stocks are systematically avoided by a segment of the investor public. The authors believe this avoidance leads to lower liquidity and arbitrage of these firms' stocks, which causes idiosyncratic risks to enter valuation and cause the stocks to be, in effect, underpriced. This suggests social norms may have significant cost impacts on sin firms. Such costs might not be limited to the financial markets: Leventis and Hasan (2012) find that sin firms pay higher fees for external audit. They suggest several alternative explanations: that auditors work more diligently on sin firm contracts because the costs of failure in the form of reputation loss for the auditor are greater (i.e., sin firm 'immorality' compounds auditor's failure); that auditors do not work harder but extract an insurance-like premium to insulate themselves from these costs; or

that the sin firms themselves demand more rigorous audit in order to assure the public of the quality of their reporting and thus improve their public perception.

Beneish et al. (2008) document an unusual impact of sin industry involvement in tobacco firms: They find that these firms create value through diversifying acquisitions, which are otherwise generally value-destroying for bidder shareholders (e.g. Jensen, 1986, Shleifer and Vishny, 1988). Beneish et al. find it likely that tobacco firms undertake diversifying acquisitions to protect themselves against expropriation by public authorities (regulation, intervention, litigation) and private claimants (litigation, class action). The acquisitions help this purpose through the geographical expansion of the firms' political connectedness and influence, which presumably improves their chances of defending themselves against such expropriation, as well as through divesting the firms of excess cash, which is much easier to claim then physical assets in the event of an expropriation attempt. Benesih el al. also find that this strategy began to be widely employed by (and successful in creating shareholder value for) tobacco firms only after 1953, roughly when the adverse effects of smoking on health were conclusively proven and widely accepted.[1] The authors contribute to evidence that social norms may act on sin firms through varied mechanisms, and show that the effects of social norms can lead to substantial structural and operational changes. Such changes can presumably only be justified by a threat of significant costs or losses, suggesting that violation of social norms may carry economically significant consequences. Furthermore, the behaviour identified by Beneish et al. suggests that tobacco firms may (today) be the most 'stigmatized' of the three sin industries.

The effects of firm perception on the compensation of top executives are explored in Maug et al. (2014), who examine the compensation of CEOs of 'prestigious' firms; they measure prestige by placement in several rankings of firm perception by the general public and business professionals. The authors find that CEOs of prestigious firms are willing to accept lower compensation, and suggest this is likely due to the increased social status that working for a prestigious firm confers, or possibly due to the improved career opportunities gained by working for a popular firm.[2] They also find that the effect is only significant when boards of

[1] See the medical research papers based on the long-running "British Doctors Study" of Doll and Hill (key results published 1954, 1956).

[2] Furthermore, the concurrent research of Novak and Bilinsky (2014) shows that executive compensation in tobacco firms increases, controlling for common pay determinants, in periods following the passing of publicized anti-tobacco legislation within areas where the legislation is binding. This direction is not explored in my thesis, and their results suggest that perception of tobacco products in particular (and likely of a firm's business in general, considering the results of Maug et al., 2014) matters to executive compensation.

directors are strong; when they are not CEOs do not get paid less and extract the benefits of prestige as an additional rent. The authors find it unlikely that prestige is simply a proxy for better governance, which may be associated with lower executive compensation in a similar manner (e.g. Bebchuk et al., 2002; Bebchuk and Fried, 2003; Yermack, 2006).

These studies show that social norms and public perception can have significant economic effects. Specifically in sin firms, the violation of social norms regarding the morality of business may be related to a variety of costs and anomalous behaviours by the firm and/or its environment. In this thesis, I hypothesize that social norms may also be related to these sin firm-specific costs, or the 'cost of sin', as some have called it, through a premium in the compensation of executives. It has been suggested that executive compensation is sensitive to prestige, or social status, and it stands to reason that firms violating social norms suffer a loss of status; prior research (Hong and Kacperczyk, 2009) supports this by indicating that certain market agents avoid interacting with sin firms, likely due to their damaged moral credit and/or to avoid losing status themselves by association. Therefore, it seems possible that the decreased social status of sin firms may transfer onto their executives (who may also, to an extent, be regarded as distinct agents vis-à-vis the firm, cf. corporate governance and the principal-agent relationship) and thus hurt their own social standing, leading to a premium in executive compensation awarded as recompense for having to bear this 'sin stigma'.

> **Hypothesis 1**: There is an idiosyncratic premium in executive compensation in sin firms.

Furthermore, prior results indicate that certain sin activities may be more heavily 'stigmatized' than others. In particular, tobacco firms may be viewed by the public as exceptionally 'sinful'; I base this assumption on their unique and complex counter-expropriation behaviour, as well as observations about the high and mounting level of public animosity and reprisal against the tobacco industry (Beneish et al., 2008; Hong and Kacperczyk, 2009). I also believe that if a premium is present, it would make sense for it to scale with the 'sinfulness' of the industry. As an extension of that argument, I believe the premium would also be likely to scale with the

magnitude of a firm's sin involvement, as not all firms active in the sin industries focus exclusively on 'sin' (norm-violating) operations.

Hypothesis 2a: The premium is larger in the tobacco industry than in the alcohol and gambling industries.

Hypothesis 2b: The premium in executive compensation is larger when the degree of a firm's involvement in 'sin' activities is greater.

2.2. Determinants of Executive Compensation

In order to look for a sin premium, it is necessary to take into account other known determinants of executive compensation. A sizeable body of past research agrees that executive compensation is positively related to firm attributes relevant to shareholder value, such as firm size (e.g. Gabaix and Landier, 2008; Hartzell and Starks, 2003), growth (Maug et al., 2014), performance (Engel et al., 2010; Hartzell and Starks, 2003; Roulstone, 2003), risk (Maug et al., 2014; Roulstone, 2003), and the market-to-book ratio popularized by Fama and French (Fama and French, 1993; Roulstone, 2003). Executive compensation may also be influenced by outside career options, and firms in larger industries may pay more in order to remain competitive given the larger offer of other executive jobs in the industry (Coles et al., 2012). Relative importance of the executive within the top management also affects compensation (Engel et al., 2010); it is probably not surprising that CEOs in particular receive significantly higher compensation than other top managers (e.g. Hartzell and Starks, 2003; Roulstone, 2003). Because strong serial dependence has been documented in executive compensation (e.g. Graham et al., 2012; Jensen and Murphy, 1990), it has become relatively common to include both current and lagged firm characteristics in cross-sectional compensation regressions (Graham et al., 2012).

One of the most discussed features of executive compensation is its performance sensitivity (e.g. Frydman and Saks, 2010; Gibbons and Murphy, 1990; Jensen and Murphy, 1990). Although the relationship has been documented as far back in time as modern records are available (Gabaix and Landier, 2008), evidence is conflicted on whether this relationship has

been strengthening, weakening, or constant (Frydman and Saks, 2010; Gibbons and Murphy, 1990). In any case, compensation level as well as performance sensitivity are influenced by the power balance between owners and managers (Bebchuk et al., 2002; Bebchuk and Fried, 2003): Powerful owners are able to curb managers' tendencies to overpay themselves (e.g. Maug et al., 2014), while powerful managers extract pecuniary and non-pecuniary rents from firms (Bebchuk et al., 2002; Grinstein and Hribar, 2004; Maug et al., 2014; Yermack, 2006).

Forced turnover of executives is related to performance in a manner similar to pay performance sensitivity (Coughlan and Schmidt, 1985; Huson et al., 2004; Jenter and Lewellen, 2010; Warner and Watts, 1988; Weisbach, 1988), and performance-related turnover may in fact be considered an extreme manifestation of pay performance sensitivity (as dismissal may be viewed as denial of compensation, even if that is a somewhat narrow view). Again, strong owners increase the sensitivity of the performance-turnover mechanism (Jenter and Lewellen, 2010). However, executives may also leave voluntarily or involuntarily for other reasons, such as retirement, firm acquisition (which usually entails a change of management regardless of the outgoing management's prior performance), or a better offer elsewhere. The last option is presumably related to an observed higher tendency of executives to leave after exceptionally good performance (Fee and Hadlock, 2003), which combines with an increased chance of being fired after poor performance to create a 'U-shape' in the performance-turnover relationship.

Individual ability of executives may also influence compensation. Demerjian et al. (2012) have recently developed a measure of the collective ability of a firm's management team, called the *MA Score*. Conceptually, the MA Score is defined as the part of variance in firm efficiency that cannot be attributed to firm characteristics. Another possible proxy for ability is firm performance, or more precisely an executive's contribution thereto; studies of turnover events indicate contribution to firm value is relevant for executive compensation (Hayes and Schaefer, 1999; Nguyen and Nielsen, 2010). Individual ability and work results also contribute to an executive's career mobility options (Coles et al., 2012). Performance as an executive is likewise important for the offers of outside director seats in other companies (Brickley et al., 1999; Kaplan and Reishus, 1990). I use the extant knowledge of executive compensation and outside directorship determinants to select control variables and formulate alternative explanation hypotheses throughout the thesis.

2.3. Executives as Outside Directors

Outside directorships form an important part of an executive's career prospects, and may be considered a mark of status among executives (Kaplan and Reishus, 1990). In addition to the status mark function of directorships for executives, all directors also receive financial compensation. Although substantially lower than top executive compensation, outside director compensation is non-trivial, especially if an individual holds multiple directorships (Yermack, 2004). While success as an outside director is related to success in the primary job (i.e., the executive job) for an executive, it is also influenced by an individual's actions as a director: Directors who defend shareholder interests successfully are rewarded, often by a higher probability of receiving additional directorships; conversely, failure at defense of shareholder rights leads to a higher probability of losing directorial seats (Coles and Hoi, 2003; Farrell and Whidbee, 2000; Harford, 2003). Because performance of directors is understandably important to owners, and the balance of power between managers and the board can have important implications (Bebchuk et al., 2002; Bebchuk and Fried, 2003; Grinstein and Hribar, 2004; Jenter and Lewellen, 2010; Maug et al., 2014; Yermack, 2006), firms likely hire successful executives of other firms as outside directors in order to improve their chances of creating a strong board. However, firms may also hire successful executives as directors for signaling and publicity reasons, as having a successful manager on the board may be seen by potential investors as a sign of a strong board regardless of its actual performance (Kaplan and Reishus, 1990).

Having previously established the possibility that association with a sin firm transfers a stigma of poor public perception upon its executives (Hong and Kacperczyk, 2009 and Maug et al., 2014), I now further propose that it is possible this stigma may also influence executives' activities as outside directors. Extant research suggests that firms hire outside directors not only because of their prior success, but possibly also to send a signal of good governance to owners. Therefore, I believe the presence of the stigma may make sin firm executives less attractive as potential outside directors in other firms. Holding their other relevant characteristics such as success in the executive job, this may lead to lower holdings of outside directorships by sin executives, and thus further loss of the prestige and financial gain which come with directorial seats. It is even possible that the executive compensation premium in sin firms is directly related to this handicap in directorial activities; in that case sin executives' lower activity as outside

directors could be thought of as a concrete manifestation of the adverse effects of the sin stigma which I hypothesize sin managers bear.

Hypothesis 3a: Sin firm executives are less active as outside directors on the boards of other firms than other executives.

Hypothesis 3b: Level of activity of sin firm executives as outside directors explains the premium in sin firm executive compensation.

3. Research Design

3.1. Basic Model for Compensation

To test the effects of firm sin status on executive compensation I use a linear regression model of the form:

$$\boldsymbol{Comp_t = \beta_0 + \beta_1 Sin_t + \sum_i \beta_i Controls + \sum_j \beta_j FE + \varepsilon_t} \quad \textbf{(1)}$$

Consistent with prior research (Gabaix and Landier, 2008; Maug et al., 2014; Roulstone, 2003) I use total direct compensation as measured in the ExecuComp database (item *'TDC1'*) as the main compensation measure. I further decompose *TDC1* into salary (*Salary*), bonus (*Bonus*), and other direct compensation (*ODC*)[3] and I estimate the model using these four measures as dependent variables to assess the consistency of the premium across the individual compensation components. *Sin* is a dummy variable equal to 1 if a company is a sin firm and zero otherwise. I use three definitions of *Sin* based on the intensity of a firm's involvement in sin activities. I define my default sin measure (*SIN1*) based on the Fama and French (1997) '49

[3] Other Direct Compensation consists mainly of: restricted stock grants, long-term incentive plan payouts, Black-Scholes value of options granted, various gains on capital compensation (options and restricted stock), tax reimbursements, gains on pension benefits, personal benefits and perquisites, separation and change-in-control payments, life insurance gains, 401K contributions, and all other pecuniary compensation.

industries' (FF49). *SIN1* comprises firms belonging to the alcohol industry (SIC codes in the range 2100 – 2199), the tobacco industry (SIC codes in the range 2080 – 2085), or the gambling industry (NAICS codes 7132, 71312, 713210, 71329, 713290, 72112, and 721120, as gambling is not separated out of the entertainment industry in the SIC-based FF49 classification).

My second definition (*SIN2*) includes all firms classified in *SIN1* as well as firms which have at least one segment belonging to the sin industries defined above (using the Compustat Business Segments database). *SIN2* corresponds to the primary sample used in Hong and Kacperczyk (2009). My widest sample, *SIN3*, further enlarges *SIN2* by adding firms which are not in the Hong & Kacperczyk sample but which are flagged with 'alcohol concern', 'gambling concern', or 'tobacco concern' in the MSCI ESG STATS ('MSCI', formerly KLD) database. A relatively peripheral sin involvement (e.g. 15-20% of sales coming from sin ativities) is generally sufficient for a firm to be flagged in this database; therefore, this sample may also contain firms the bulk of whose activities is only distantly or not at all related to a sin industry. I expect the sin premium to be largest in firms that meet the most restrictive definition and weaken as the definition broadens. I also disaggregate the *SIN1* category into the three individual industries that constitute the *SIN1* sample, using the dummies *ALC1* for the alcohol industry, *GAM1* for the gambling industry, and *TOB1* for the tobacco industry. Besides being present in each individual industry, I expect sin effects to be strongest in the tobacco industry. This expectation is based on my assessment of the degree of 'disapproval' that tobacco products elicit in public policy and the society in general relative to alcohol products and gambling services, as well as on the results of Beneish et al. (2008) and comments in Hong and Kacperczyk (2009).

I base my set of control variables (*Controls*) on the recent work of Maug et al. (2014) who examine executive compensation in prestigious firms. These controls generally reflect determinants of executive compensation identified in past research. It is well established that executives in firms that are larger, faster growing, better performing, riskier, or have a higher share of value in future prospects, are paid more. I measure firm size (*CAP*) as the natural logarithm of the number of shares outstanding times the closing price at the last trading day of the fiscal year (Gabaix and Landier, 2008; Hartzell and Starks, 2003). I also include sales volume (*SALE*) as an accounting measure of firm size (e.g. Gabaix and Landier, 2008; Roulstone, 2003), measured as the natural logarithm of the dollar value of the firm's sales for the fiscal year. I measure growth by the growth of sales (*SALES_GR*), an accounting measure

(e.g. Maug et al., 2014), computed as the ratio of total dollar sales for fiscal year *t* over total sales for fiscal year *t-1*. I use return on assets (*ROA*) as an accounting measure of profitability (e.g. Engel et al., 2010; Roulstone, 2003). I define ROA as the ratio of *Income Before Extraordinary Items* (Compustat item no. 18) to total book assets (Compustat item no. 6). I measure market performance by excess return (*XRET*); I define excess return as the difference between the firm's cum-dividend stock market return for the fiscal year and the return on the S&P 500 index for the same fiscal year. Stock performance in some form is used as a control e.g. in Hartzell and Starks (2003), Roulstone (2003).

I use the standard deviation of stock returns (*SD_RET*) as a proxy for firm risk, as in for example Maug et al. (2014), Rousltone (2003). I compute *SD_RET* for fiscal year *t* as the standard deviation of the series of monthly cum-dividend stock returns for the 12 months of *t*, i.e. the 12 consecutive calendar months ending with the firm's fiscal-year-end month. Some executive compensation research (e.g. Roulstone, 2003) also uses the market-to-book ratio (*MB*) as a control. Its properties are discussed in Fama and French (1993), who propose the ratio as a measure of the market's appraisal of the firm's future prospects, and possibly also an indicator of industry status as 'glamour' or 'value'. I compute *MB* as the ratio of market capitalization at the end of the fiscal year to the book value of equity at the end of the same fiscal year.

I use a CEO status dummy variable (*CEO*), which records whether or not the executive has been CEO in the given fiscal year; I do not differentiate by role between the remaining top executives. A CEO dummy is used e.g. in Hartzell and Starks (2003). I also add a dummy for CEOs who have more than one job on record in the sample (*CEO_SW*); not all of those engagements need to be as CEO, but the dummy is equal to 1 only for the CEO job(s). I use an additional dummy for when a sin CEO has more than one job on record (*CEO_SSW*); again, the other employments do not need to be in sin and/or as CEO, but the dummy is only equal to 1 for the sin CEO job. These two dummies are included because the proportion of CEOs among sin employees who have more than one job on record is not stable across industries (e.g. the tobacco industry has more individuals on record who at some point are tobacco CEOs and have more than one job in the sample than the other two sin industries), and with these restrictions the sample is too small for differences to average out. This could bias the results on what happens when executives switch jobs to and from the sin industries, unless controlled for.

I further add industry size (*FFSIZE*) to my control set, as it may affect compensation by influencing the number of outside career options and 'tournament incentives' available to executives (Coles et al., 2012). I measure *FFSIZE* as the natural logarithm of the number of firms in the sample that belong to the same FF49 industry classification in a given fiscal year. I measure the firm's market power using *MSHARE*, which is the natural logarithm plus 1 of the relative market share of the firm in its FF49 industry, where relative market share is the ratio of actual to expected (one over number of firms in industry) market share. Market shares are calculated from total sales for the fiscal year. I control for governance quality with *GINDEX*, which is the Gompers-Ishii-Metrick G-index, a measure of shareholder power relative to managers (Gompers et al., 2003). Since G-index data is available bi-annually, I use linear interpolation to fill in the gaps. I also add two variables related to career: *JOB_NO* is the serial number of the current employment among an executive's recorded employments in the sample (i.e., 1st, 2nd, etc.). *TIME_INSAMPLE* is the difference between current fiscal year and the earliest year the given executive appears in my sample (regardless of whether with the same or a different employer), and is a proxy for experience, as data such as time with company, time in industry, or time since promotion to first executive position is generally not available.

I adjust all dollar amounts and returns I work with for inflation, with the average value of the US CPI for 1982-1984 being the baseline. I Winsorize all ratio variables, stock and market returns and derivative variables, and all compensation variables at 1%. Following Maug et al. (2014), I lag all my firm-specific controls except *GINDEX* and *MSHARE* by one year, to allow for a transmission lag between when results are generated and when they can be incorporated into compensation in a negotiation process between owners and executives. The lagging of controls can also be found e.g. in Hartzell and Starks (2003), Roulstone (2003). Consistent with e.g. Graham et al. (2012), I also add the non-lagged versions of my performance controls, *SALES_GR*, *ROA*, and *XRET*. I do not lag executive-specific controls, i.e. the CEO dummies and the 'career' controls. The vector *FE* in (1) is a vector of year fixed effect variables, i.e. a set of dummy variables, one for each year in the sample, which are equal to 1 if the fiscal year is equal to the year tracked by the dummy, and zero otherwise. It is necessary to drop one of these variables to avoid the 'dummy trap'; I let the statistics software (Stata) determine which one to drop in each regression. I cluster standard errors at the firm-executive combination level (ExecuComp variable '*co_per_rol*') as such clustering is recommended to make errors robust

to the effects of unobserved factors specific to either firms or individuals; clustered errors are also robust to heteroskedasticity (Petersen, 2009).

For some tests I use an alternative way of estimating the magnitude of sin-specific effects, the "Residual Compensation Share" (RCS), which is the mean residual/fitted ratio drawn from an auxiliary regression. This regression is a slight modification of (1), estimated with the same controls and on the same sample and including any restrictions that may be in effect, but the sin dummy is excluded. Like all other ratio variables, RCS is Winsorized at 1%. RCS is based on the assumption that the random element and all non-random effects that may be present in the residual have a constant mean between subgroups (which are usually the sin industries versus the rest of the sample). If this assumption is valid, then the difference in RCS between subgroups should generally capture the subgroup-specific effect, i.e. the sin premium that would accrue onto the *Sin* dummy if it were present. For this reason, I only report relative RCS between sample subgroups, as its absolute value holds little relevant information beyond the degree of determination in the regression. Even so, the RCS differential cannot be considered synonymous with an estimate of the sin premium: It is a practical impossibility to create an exhaustive list of variables relevant to executive compensation, and therefore there is no way to verify the assumption outlined above.

My most prominent use of RCS is to compare the unexplained part of compensation in tests concerning 'switcher' executives (executives who change jobs). In these tests, I compare compensation of such executives in a sin firm and outside it and I try to determine if the premium observed in sin is transferred into the new, non-sin job. The control variables of the RCS auxiliary regression are mainly firm, industry, and career related. Compensation for any individual traits should mostly accrue into the residual, which also contains the sin premium (for sin firm observations). I assume that personal characteristics are rewarded similarly in different firms, and that the random element in the residual averages out to zero with enough observations. Therefore, systematic differences in mean RCS of switching executives when they work in sin and when they work elsewhere should elucidate whether the sin premium is truly specific to sin firms, or whether it is an attribute of the executives who work there. If the premium is firm-specific rather than executive-specific, switching executives should have higher RCS in sin than outside it (because RCS includes the sin premium). I use this somewhat indirect method because identifying value-relevant personal traits of executives and finding

proxies for them to use directly in a regression would likely be problematic; individual traits are often hard to quantify and do not appear in any database that I am aware of.

3.2. Modifications and Other Models

I use the same basic setup in the majority of my regressions, which are generally of the form:

$$\boldsymbol{Y_t = \beta_0 + \beta_1 Sin_t + \beta_2 Sin_t * Int_t + \beta_3 Int_t + \sum_i \beta_i Controls + \sum_j \beta_j FE + \varepsilon_t} \quad \textbf{(2)}$$

This format allows me to explore the effect of various variables on executive compensation, either in a pure linear form or with possible different slopes for sin and non-sin executives. The dependent variable *Y* may be the compensation variables, or another variable relevant to the aim of the regression: In regressions examining the directorial activities of sin executives, for example, the dependent variables examined include e.g. the number of outside directorships held by the executive or the average market capitalization of a firm where the executive is an outside director. In regressions where I examine the qualities of firms the dependent variable may be for example the size of the board of directors. The vector of controls in firm-level regressions does not include the individually specific CEO dummies and career variables; otherwise the controls used are the same as in (1). In regressions examining firms standard errors are clustered at the firm level.

In my tests regarding sin firm directors, I also use the regression format of (2), with the dependent variable being for example the number of other directorial seats held or the average market cap of these other firms. The vector of control variables in director regressions does not include any of the firm-specific controls used in (1), as they are irrelevant to the activities of a firm's outside directors in other firms where these also hold directorships. In some director regressions *Controls* is an empty vector, while in others it includes relevant director-related characteristics such as the number of directorships held or the market value of firms supervised by the director. In directors regressions I cluster standard errors at the individual level (IRRC Directors database variable '*did*'), as a 'home firm' is not applicable to directors (unless it is the subsample of directors who are also executives, in which case we cluster by *co_per_rol* as previously discussed, and also use the 'home firm' characteristics as controls).

In some regressions I wish to examine whether the effect of a control variable is different in the sin industries than elsewhere. In that case, I use the interaction of the selected control with the sin dummy variables as shown in Equation 2. These interacting variables may be from the original set of controls, or specifically constructed for this purpose. A case of the latter deserving closer explanation is the control variable for executive contribution to excess return (*Contribution*), which I regress on executive compensation. This variable is an alternative to the Demerjian et al. (2012) *MA Score* measure of executive ability. I construct it to gain some measure of executives' individual abilities, as the MA Score is only firm-specific (i.e., it represents the 'ability level' of the entire management team). To obtain *Contribution*, I first perform the auxiliary regression:

$$\boldsymbol{RET_t = \beta_0 + \beta_1 MRET_t + \beta_2 CAP_{t-1} + \beta_3 MB_{t-1} + \sum_i \beta_i IFE + \sum_j \beta_j FE + \varepsilon_t} \quad \textbf{(3a)}$$

That is, I regress firm stock return (*RET*) on market return (*MRET*), firm market cap, and M/B ratio, with industry (*IFE*) and year (*FE*) fixed effects and with observations constrained to one per firm-year. I consider the residuals from this regression to be an approximation of excess return adjusted for effects outside managerial control, comparable across firms and time. I then use these residuals as the dependent variable in a second auxiliary regression,

$$\boldsymbol{r_{ft} = \beta_{f0} + \sum_i \beta_{fi} Present_{fti} + \varepsilon_{ft}} \quad \textbf{(3b)}$$

Where *Present* is a set of dummy variables which indicate whether a given executive *i* was present in firm *f* in a given year *t*, covering all years in which the firm is present in my main sample and all executives who are identified in the main sample as having worked for that firm at any time in the sample. This regression is performed for each firm in the sample separately. I consider the estimated coefficient on $Present_{fi}$ to be an approximation of executive *i*'s average contribution to r_f, which is firm *f*'s excess return estimated in (3a) so as to be comparable, over the time the executive has been with the firm. I retain the match of *Present* to an executive's database ID throughout the outlined procedure, allowing me to plug the coefficient estimates of *Present*, collected for all *f*, *t*, and *i*, back into the main dataset as the variable *Contribution*.

I measure pay performance sensitivity following Jensen and Murphy (1990):

$$\boldsymbol{\Delta C_{t,t-1} = \beta_0 + \beta_1 Sin_t + \beta_2 Sin_t * \Delta W_t + \beta_3 Sin_t * \Delta W_{t-1} + \beta_4 \Delta W_t + \beta_5 \Delta W_{t-1} + \varepsilon_t} \quad \textbf{(4)}$$

where $\Delta C_{t,t-1}$ is the change in executive compensation between *t* and *t-1*, and ΔW_t is change in shareholder wealth defined as firm stock return at *t* times shares outstanding at *t-1*. As in Jensen and Murphy (1990), I consider pay performance sensitivity to be the sum of the slopes on ΔW_t and ΔW_{t-1}. That implies that the estimate of pay performance sensitivity difference in sin industries compared to other firms is given by the sum of $\beta_2 + \beta_3$, and the estimate of the total pay performance sensitivity in sin firms is given by $\sum_{i=2}^{5} \beta_i$. As a robustness check, I also estimate the regression with *Controls* and year fixed effects, as well as using XRET instead of ordinary return to compute ΔW. This last is done on the assumption that marketwide effects are generally outside of executives' control, and past research shows that owners likely take this distinction into account when evaluating executives (Coughlan and Schmidt, 1985; Gibbons and Murphy, 1990). The *Controls* vector nonetheless includes market return as an additional control variable, on the assumption that while not the primary driver of the pay performance relationship, it can still be relevant for the level of compensation (Gibbons and Murphy, 1990). All other performance-related variables (growth of sales and ROA) are omitted from *Controls* for pay performance sensitivity tests, to avoid collinearity with *XRET*.

To estimate binary outcomes I use probit regressions of the same general form that is described in (2), except that *Y* is now the dependent binary outcome (e.g. whether or not an executive holds any outside directorships, or whether or not an executive will switch employers), and the vector of controls is selected from variables relevant to what is being measured and the sample it is being measured on; in general, controls in binary outcome regressions for firms and executives are similar to the controls used in (1), while director binary outcomes generally lack firm-specific controls and may have director-specific controls or no controls beyond the sin variables and possibly an interacting variable of interest.

4. Data

I use two main data samples: executive compensation and board membership. The executive compensation sample is drawn primarily from the ExecuComp database, with firm accounting data drawn from the Compustat database and firm market data from the CRSP database. The final sample covers the entire period and set of firms and their executives tracked by ExecuComp, with only the finance industries (Fama-French codes 45 – 48, SIC code range

6000 – 6999) summarily excluded. The time range of the sample is 1992 – 2012, inclusive, and there are 173,000 observations, each of them a firm-executive-fiscal year combination. I adjust all data to match the CRSP definition of fiscal year, i.e. fiscal year is *t* for all companies ending their fiscal years June *t-1* through May *t*. CRSP stock market data is available monthly and I compute annual returns to match the actual month of fiscal year end, although approximately 2/3 of firms end their fiscal year in December. There are over 2,600 firms, with mean time in sample of 11.5 years (out of 21 years covered). There are nearly 32,000 executives, with mean time in sample of 5.7 years (although with gaps; mean number of annual observations per executive is 5.4). The average number of executives per firm per year in sample is 5.8 (one of these is always the CEO).

The sample is reasonably well balanced in terms of annual observation count: Excepting the first year (1992), where the number of observations (5,945) is only 72% of the mean of 8,236, the highest deviation from mean observation count is 15% in 1998 (9,498 observations total). ExecuComp coverage is based on market index membership (generally the S&P 1500), and thus uneven observation count should neither favour nor neglect sin firms. I exclude the financial sector for the reason that both firm structure and compensation rules are quite specific there, and therefore the determinants of executive compensation will likely also be different. Excluding financial firms is common practice in cross-sectional economic research (e.g. Yermack, 1996). I drop observations where book equity is negative, as these are typically firms in severe distress and may be under a non-standard management regime. I further drop observations where total direct compensation is negative for the year (very few such observations exist), as these are most likely anomalous cases inconsistent with normal compensation principles. Other criteria for observation exclusion are missing key identification (CUSIP code, executive ID, firm-executive combination ID, SIC and NAICS codes), stated IPO date after observation date (as some data may be unreliable around the listing date, e.g. stock returns), and entry duplicity (only duplicates are dropped, one iteration is kept).

The board membership sample is drawn from the IRRC Directors database and again contains the full time and firm range available, except for board members of finance firms. This sample has approximately 175,000 observations in the time period 1996 – 2012, each observation being a firm-director-year combination. There are over 26,400 directors with a mean time in sample of 5.9 years (out of 17 years covered), serving on the boards of over 2,500 firms, which have a mean time in sample of 7.9 years. The average number of directors tracked per firm per year is

9.1. The sample is again quite well balanced – the two greatest deviations from the mean of 10,302 obs. per year are -20% in 2007 (8,256 obs. total) and 14% in 1998 (11,749 obs.). There are approximately 33,800 observations which are present in both samples (20% of the executives sample, 19% of the directors sample), i.e. observations of executives who also serve as directors. I base my analysis of the directorial activities of executives on this combined sample.

Sin firms in the *SIN1* sample represent about 2,200 observations (1.3%) of the executive compensation sample. This represents 426 executives (1.3%) in 34 firms (1.3%). By industry, the *SIN1* sample consists of 900 observations (159 executives at 9 firms) in the alcohol industry (*ALC1*), 973 observations (198 executives in 20 firms) in the gambling industry (*GAM1*), and 340 observations (70 executives at 5 firms) in the tobacco industry (*TOB1*). The *SIN2* sample consists of approximately 2,900 observations of 541 executives in 43 firms, 1.6-1.7% of the sample in each case. The *SIN3* sample contains roughly 3,900 observations (2.3%) of 872 executives (2.7%) in 82 firms (3.1%). *SIN2R*, the increment between *SIN1* and *SIN2*, contains 663 observations of 119 executives at 9 firms. *SIN3R*, the increment between *SIN2* and *SIN3*, contains 1,013 observations of 335 executives at 39 firms. In the Directors sample, the board members of *SIN1* firms represent about 2,400 observations (1.4%) of 500 directors (1.9%) at 31 firms (1.2%). This breaks down into 1,091 observations of 184 directors in 8 firms in *ALC1*, 834 observations of 212 directors in 16 firms in *GAM1*, and 467 observations of 106 directors in 7 firms in *TOB1*. *SIN2* firms represent roughly 3,200 observations (1.8%) of 637 directors (2.4%) in 40 firms (1.6%) and *SIN3* firms account for around 4,700 observations (2.7%) of 1,117 directors (4.2%) in 76 firms (3.0%). *SIN2R* firms comprise 823 observations of 143 directors in 9 firms, and *SIN3R* firms consist of 1,512 observations of 500 directors at 36 firms.

In addition to these primary data sources I also use several secondary sources for additional data: G-index data is drawn from the IRRC Governance database. The ‘MA Score’ ability measure is available for example at co-author Sarah McVay’s public profile at the University of Washington website. Data on US GDP growth was downloaded from the World Bank public online databank. The SIC code ranges identifying the Fama-French 49 industries are freely available e.g. from Kenneth R. French’s website at the Tuck School of Business in Dartmouth. CPI index data is available e.g. as part of CRSP coverage. Data on business segments is available from Compustat. Data on institutional ownership is taken from FactSet Research. Data on peripheral sin involvement is taken from the MSCI ESG STATS database (formerly KLD).

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Median	1st perc.	99th perc.	Obs
ALC1	0.005	0.072	0.000	0.000	0.000	172,961
GAM1	0.006	0.075	0.000	0.000	0.000	172,961
TOB1	0.002	0.044	0.000	0.000	0.000	172,961
SIN1	0.013	0.112	0.000	0.000	1.000	172,961
SIN2R	0.004	0.062	0.000	0.000	0.000	172,961
SIN2	0.017	0.128	0.000	0.000	1.000	172,961
SIN3R	0.006	0.078	0.000	0.000	0.000	172,961
SIN3	0.022	0.148	0.000	0.000	1.000	172,961
TDC1	1,029.263	1,461.924	533.549	71.947	9,181.532	153,993
SALARY	197.981	121.775	163.553	20.734	665.558	172,961
BONUS	109.269	207.837	36.716	0.000	1,184.781	172,961
ODC	696.852	1,245.269	261.846	0.000	7,864.725	153,993
CAP_{t-1}	6.476	1.739	6.371	2.357	10.863	171,965
$SALE_{t-1}$	6.387	1.670	6.344	2.202	10.319	172,599
$SALES\_GR_t$	0.112	0.339	0.059	-0.486	1.419	169,454
$SALES\_GR_{t-1}$	0.121	0.353	0.062	-0.488	1.486	167,834
ROA_t	0.037	0.123	0.049	-0.475	0.249	172,882
ROA_{t-1}	0.036	0.133	0.050	-0.518	0.250	172,599
$XRET_t$	0.048	0.345	0.011	-0.646	1.471	172,961
$XRET_{t-1}$	0.052	0.350	0.013	-0.650	1.520	172,961
SD_RET_{t-1}	0.113	0.068	0.097	0.023	0.367	172,361
MB_{t-1}	2.099	1.674	1.556	0.566	11.334	171,650
CEO	0.173	0.378	0.000	0.000	1.000	172,961
CEO_SW	0.027	0.162	0.000	0.000	1.000	172,961
CEO_SSW	0.001	0.031	0.000	0.000	0.000	172,961
FFSIZE	4.967	0.821	5.037	2.303	6.458	172,961
G-index	9.017	2.644	9.000	3.000	15.000	144,226
MSHARE	0.753	0.693	0.516	0.016	2.791	172,894
JOB_NO	1.068	0.298	1.000	1.000	2.000	172,961
Time in sample	4.850	3.886	4.000	1.000	17.000	172,961
$DWEALTH_t$	86.696	977.611	11.592	-4,063.979	5,593.634	171,965
$DWEALTH_{t-1}$	89.457	973.386	12.326	-4,063.045	5,608.228	136,060
MA Score	0.015	0.137	0.005	-0.302	0.396	158,053
Contribution	-0.006	0.365	0.000	-1.393	1.373	172,266
CV_TDC1	0.451	0.272	0.402	0.029	1.294	162,996
Decrease_avg	0.291	0.180	0.313	0.000	0.667	172,961
TOP5	0.286	0.093	0.281	0.092	0.538	97,716
CIS	0.029	0.024	0.025	0.003	0.100	97,716

Table 1: Descriptive statistics
Main sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity and/or negative TDC1 compensation. Sin involvement dummies are defined in Section 3. TDC1 is ExecuComp (EC) *total direct compensation* (item *tdc1*). SALARY is EC item *salary*; BONUS is EC item *bonus*; ODC is *other direct compensation*, ODC = TDC1 - SALARY - BONUS. CAP is the natural logarithm of market capitalization (period end price times period

end shares outstanding). SALE is the natural logarithm of total sales (Compustat item 12, *Sales (Net)*). SALES_GR is the growth of sales, i.e. $SALES\_GR_t=SALE_t/SALE_{t-1}$. ROA is return on assets, $ROA_t=IB_t/AT_t$, where IB is *Income Before Extraordinary Items* (Compustat item no. 18) and *AT* is total book assets (Compustat item no. 6). XRET is excess return, defined as firm stock return for the fiscal year less market return for the fiscal year. SD_RET is the standard deviation of firm monthly stock returns for the fiscal year. MB is the *market-to-book* ratio, $MB_t=CAP_t/EQ_t$, where EQ is book common equity (Compustat item 11). CEO is a dummy equal to 1 if executive is CEO in the fiscal year, 0 otherwise. CEO_SW is a dummy equal to 1 if executive is CEO in the fiscal year and has at least 1 other job (CEO or not) on record in sample; 0 otherwise. CEO_SSW is a dummy equal to 1 if executive is CEO in a SIN1 firm in the fiscal year and has at least 1 other job (CEO or not, sin or not) on record in sample; 0 otherwise. FFSIZE is the natural logarithm of the number of distinct firms in the *Fama-French 49 Industries* industry for the fiscal year. G-index is the Gompers-Ishii-Metrick (2003) corporate governance quality index. MSHARE is the natural logarithm plus one of relative market share, which is the ratio of actual to expected (industry average) market share for the fiscal year and FF49 industry. Market shares are calculated based on total sales. JOB_NO is the serial number of executive's employment in the sample (1st, 2nd, etc.). Time in sample is the total number of years the executive has been present in the sample up until the year in question, which we use as a proxy for experience. DWEALTH is the Jensen-Murphy (1990) measure of the change in shareholder wealth, i.e. the firm stock return multiplied by market cap at the end of the previous year. MA_SCORE is the 'MA Score' metric from Demerjian et al. (2012). Contribution is an estimate of executive's contribution to firm excess return (details in Section 3). CV_TDC1 is the coefficient of variation (st. dev. over mean) of TDC1 over executive's tenure at firm. Decrease_avg is the mean over executive's tenure at firm of a binary indicator that is equal to 1 if TDC1 has decreased year-to-year, 0 otherwise. TOP5 is the combined ownership share of the 5 largest institutional shareholders. CIS is the concentration of institutional shareholdings, measured as the Herfindahl-Hirschmann Index thereof. All financial variables and returns are adjusted for CPI inflation to the mean prices of 1982-84. All continuous variables except FFSIZE and *Ability* are Winsorized at 1% (two-sided).

Table 2: Correlation matrix

Table 2: Correlation matrix. Standard calculation method used for correlations. For variable definitions see Table 1. Some column header names shortened to fit.

	ALC1	***GAM1***	***TOB1***	***SIN1***	***SIN2R***	***SIN2***	***SIN3R***	***SIN3***
ALC1	1.000							
GAM1	-0.006	1.000						
TOB1	-0.004	-0.004	1.000					
SIN1	0.639	0.651	0.398	1.000				
SIN2R	-0.006	-0.006	-0.004	-0.009	1.000			
SIN2	0.535	0.545	0.333	0.836	0.541	1.000		
SIN3R	0.037	0.003	-0.005	0.024	0.025	0.034	1.000	
SIN3	0.429	0.437	0.267	0.670	0.433	0.801	0.607	1.000
TDC1	0.067	0.023	0.055	0.080	0.007	0.071	0.032	0.075
SALARY	0.075	0.057	0.058	0.109	0.011	0.097	0.057	0.111
BONUS	0.056	0.046	0.044	0.084	0.033	0.088	0.022	0.078
ODC	0.061	0.011	0.051	0.067	0.003	0.058	0.027	0.063
CAP_{t-1}	0.053	0.008	0.070	0.067	0.002	0.058	0.070	0.085
$SALE_{t-1}$	0.079	0.004	0.065	0.080	0.018	0.077	0.066	0.101
$SALES\_GR_t$	-0.011	0.008	-0.021	-0.011	0.003	-0.008	-0.003	-0.008
$SALES\_GR_{t-1}$	-0.013	0.011	-0.020	-0.009	0.004	-0.005	-0.015	-0.013
ROA_t	0.038	-0.004	0.019	0.030	0.001	0.026	0.023	0.035
ROA_{t-1}	0.037	-0.007	0.021	0.028	0.001	0.024	0.019	0.032
$XRET_t$	0.000	0.009	0.011	0.010	0.000	0.009	0.006	0.012
$XRET_{t-1}$	-0.010	0.014	0.009	0.007	0.003	0.007	0.002	0.009
SD_RET_{t-1}	-0.062	0.013	-0.030	-0.044	-0.014	-0.045	-0.033	-0.057
MB_{t-1}	0.024	-0.024	0.004	0.001	-0.033	-0.017	0.005	-0.011

	ALC1	*GAM1*	*TOB1*	*SIN1*	*SIN2R*	*SIN2*	*SIN3R*	*SIN3*
CEO	0.008	0.001	0.004	0.007	0.003	0.007	-0.001	0.005
CEO_SW	-0.010	0.025	0.014	0.016	0.023	0.026	-0.004	0.018
CEO_SSW	0.015	0.183	0.106	0.172	0.027	0.160	0.009	0.135
FFSIZE	-0.162	-0.147	-0.152	-0.262	-0.046	-0.245	-0.044	-0.219
G-index	-0.093	-0.024	0.015	-0.070	0.007	-0.055	0.020	-0.033
MSHARE	0.021	0.028	0.002	0.033	-0.011	0.022	0.062	0.056
JOB_NO	-0.013	0.012	-0.006	-0.003	0.035	0.017	0.008	0.014
Time in sample	0.015	0.002	-0.012	0.006	-0.006	0.002	0.008	0.004
DWEALTH$_t$	0.030	0.002	0.066	0.047	0.004	0.042	0.019	0.048
DWEALTH$_{t-1}$	0.012	0.005	0.052	0.032	0.001	0.027	0.008	0.029
Ability	-0.019	0.018	-0.035	-0.014	0.000	-0.012	-0.011	-0.012
Contribution	0.009	0.000	-0.004	0.005	0.005	0.007	0.002	0.006
CV_TDC1	-0.010	0.028	-0.008	0.009	0.008	0.012	-0.020	-0.004
Decrease_avg	-0.015	0.041	-0.003	0.016	0.021	0.025	0.004	0.022
TOP5	-0.035	-0.018	-0.010	-0.038	0.002	-0.031	-0.004	-0.024
CIS	0.008	-0.017	-0.011	-0.010	-0.007	-0.012	0.016	0.003

	TDC1	*SALARY*	*BONUS*	*ODC*	*CAP$_{t-1}$*	*SALE$_{t-1}$*	*S~_GR$_t$*	*S~_GR$_{t-1}$*
TDC1	1.000							
SALARY	0.661	1.000						
BONUS	0.501	0.441	1.000					
ODC	0.978	0.587	0.345	1.000				
CAP$_{t-1}$	0.499	0.456	0.283	0.480	1.000			
SALE$_{t-1}$	0.428	0.532	0.279	0.393	0.731	1.000		
SALES_GR$_t$	0.094	-0.017	0.103	0.088	0.081	-0.119	1.000	
SALES_GR$_{t-1}$	0.086	-0.018	0.052	0.087	0.113	-0.042	0.230	1.000
ROA$_t$	0.098	0.101	0.122	0.083	0.241	0.194	0.206	0.016
ROA$_{t-1}$	0.096	0.096	0.073	0.089	0.283	0.206	0.037	0.155
XRET$_t$	-0.005	-0.018	0.058	-0.014	-0.116	-0.039	0.086	-0.038
XRET$_{t-1}$	0.040	-0.025	0.044	0.039	0.049	-0.069	0.216	0.111
SD_RET$_{t-1}$	-0.090	-0.190	-0.083	-0.073	-0.310	-0.349	-0.002	0.043
MB$_{t-1}$	0.194	-0.014	0.063	0.211	0.344	-0.096	0.257	0.288
CEO	0.373	0.519	0.218	0.341	0.004	0.005	-0.006	-0.003
CEO_SW	0.190	0.226	0.095	0.180	0.031	0.021	-0.001	0.001
CEO_SSW	0.077	0.080	0.046	0.072	0.030	0.026	-0.004	-0.006
FFSIZE	0.038	-0.080	-0.027	0.057	0.051	-0.156	0.098	0.128
G-index	0.033	0.097	0.035	0.026	0.104	0.187	-0.057	-0.077
MSHARE	0.443	0.476	0.291	0.412	0.705	0.800	0.011	0.007
JOB_NO	0.115	0.134	0.050	0.111	0.058	0.059	0.007	0.013
Time in sample	0.209	0.326	0.079	0.194	0.089	0.133	-0.033	-0.054
DWEALTH$_t$	0.066	0.061	0.095	0.053	0.057	0.091	0.040	-0.042
DWEALTH$_{t-1}$	0.116	0.060	0.080	0.113	0.157	0.093	0.123	0.055
Ability	0.042	-0.006	0.042	0.041	0.083	0.029	0.233	0.123
Contribution	0.000	-0.008	0.004	0.000	0.004	-0.003	0.016	0.003
CV_TDC1	0.166	0.125	0.110	0.155	0.041	-0.066	0.077	0.103
Decrease_avg	0.049	0.093	0.010	0.046	-0.061	-0.085	-0.032	-0.010
TOP5	-0.165	-0.129	-0.117	-0.154	-0.220	-0.172	-0.088	-0.084
CIS	-0.131	-0.087	-0.086	-0.126	-0.158	-0.116	-0.067	-0.067

	ROA_t	ROA_{t-1}	$XRET_t$	$XRET_{t-1}$	$S\sim ET_{t-1}$	MB_{t-1}	*CEO*	*C~_SW*
ROA_t	1.000							
ROA_{t-1}	0.515	1.000						
$XRET_t$	0.113	-0.081	1.000					
$XRET_{t-1}$	0.134	0.096	-0.047	1.000				
SD_RET_{t-1}	-0.274	-0.326	0.090	0.178	1.000			
MB_{t-1}	0.231	0.270	-0.081	0.241	0.070	1.000		
CEO	-0.006	-0.004	-0.008	-0.004	0.000	-0.002	1.000	
CEO_SW	-0.006	-0.013	-0.002	0.001	-0.003	-0.003	0.350	1.000
CEO_SSW	0.004	0.003	0.003	0.004	-0.002	0.001	0.072	0.206
FFSIZE	-0.055	-0.045	-0.004	0.023	0.178	0.242	-0.004	0.008
G-index	0.031	0.018	0.004	-0.016	-0.125	-0.102	-0.003	0.021
MSHARE	0.151	0.146	-0.027	-0.043	-0.260	0.067	0.005	0.020
JOB_NO	-0.014	-0.024	-0.008	-0.005	-0.003	-0.019	0.113	0.519
Time in sample	0.061	0.055	-0.025	-0.030	-0.141	-0.064	0.311	0.174
$DWEALTH_t$	0.077	0.010	0.331	-0.036	-0.035	-0.075	0.004	-0.005
$DWEALTH_{t-1}$	0.110	0.081	-0.040	0.340	-0.064	0.151	0.001	-0.007
Ability	0.286	0.243	0.032	0.099	-0.103	0.217	-0.003	-0.011
Contribution	0.018	0.007	0.051	0.039	0.008	0.010	-0.004	0.004
CV_TDC1	-0.065	-0.050	0.011	0.037	0.158	0.139	0.230	0.060
Decrease_avg	-0.056	-0.030	-0.036	-0.020	0.045	0.005	0.166	0.083
TOP5	-0.083	-0.047	-0.054	-0.061	-0.005	-0.136	-0.004	0.014
CIS	-0.059	-0.033	-0.031	-0.044	-0.011	-0.105	-0.004	0.008

	C~SSW	*FFSIZE*	*G-index*	*MSHARE*	*JOB_NO*	*Time in~*	$DWEA\sim_t$	$DWE\sim_{t-1}$
CEO_SSW	1.000							
FFSIZE	-0.064	1.000						
G-index	-0.014	-0.065	1.000					
MSHARE	0.021	-0.011	0.115	1.000				
JOB_NO	0.099	0.018	0.016	0.048	1.000			
Time in sample	0.036	-0.079	0.045	0.059	0.261	1.000		
$DWEALTH_t$	0.017	-0.035	0.008	0.083	-0.010	0.012	1.000	
$DWEALTH_{t-1}$	0.020	-0.020	-0.004	0.094	-0.010	0.007	-0.028	1.000
Ability	-0.006	0.076	0.032	0.019	-0.017	0.030	-0.013	0.045
Contribution	0.021	-0.001	0.000	0.002	-0.003	-0.008	0.013	0.008
CV_TDC1	0.012	0.139	-0.088	-0.016	0.020	0.188	-0.016	-0.004
Decrease_avg	0.026	0.031	-0.057	-0.056	0.080	0.155	-0.022	-0.023
TOP5	-0.010	-0.038	0.019	-0.206	0.001	-0.014	-0.051	-0.065
CIS	-0.010	-0.039	-0.022	-0.159	-0.003	-0.015	-0.040	-0.050

	Ability	*Contrib~*	*CV_TDC1*	*Dec~_avg*	*TOP5*	*CIS*
Ability	1.000					
Contribution	0.009	1.000				
CV_TDC1	0.024	-0.013	1.000			
Decrease_avg	-0.022	0.001	0.116	1.000		
TOP5	-0.039	0.000	-0.037	0.022	1.000	
CIS	-0.022	-0.001	-0.026	0.020	0.877	1.000

5. Results

5.1. Profile of Sin Firms

Before I present my results, it may be useful to make a brief review of the sin industries. In short, they may be described as small industries populated by large and profitable firms. As Figure 1 below summarizes, sin firms are among the individually largest firms, both when measured by market capitalization and when measured by sales volume. Sin industries as a whole, on the other hand, contain very few firms at any given time. This makes the sin industries highly concentrated (not tabulated), with a few large firms pushing for market share and dominance, although as Hong and Kacperczyk (2009) note, there may be a fringe of smaller firms that are not publicly traded, as the option to go public may be less appealing and therefore taken by fewer in the sin industries, as a result of the stock market shunning and premium documented by these authors. *ROA* in the sin industries is high, although excess return is only moderate. In terms of the ability to generate income, sin firms are quite profitable, although the stock market seems to be reserved about their success.

Growth, on the other hand, is low in sin firms, but this may be mitigated by sin firms' low risk. This profile is perhaps not surprising, as sin firms face mostly shrinking or non-growing markets, in no small part due to regulatory and social pressures. These pressures are present due to sin products' vicious nature, which in turn stems in part from these products' addiction-forming properties. It is likely this addicted customer base that helps provide stability to sin firms. Alcoholic beverages are constantly popular and usually only mildly regulated, but there is little novelty in them to drive firm growth and a given consumer will only drink so much liquor. Gambling is fairly tightly regulated in the United States, perhaps less so in the EU; nonetheless, it shows higher growth than the other sin industries, possibly because the amount of money spent on gambling is more sensitive to economic growth (people may gamble with a portion of their wealth rather than a fixed sum). As one would expect if that were the case, gambling is, also unlike other sin industries, quite risky, which suggests that gambling firms may have had a significantly more difficult time of the recent crisis and depression than alcohol and tobacco firms. Finally, tobacco is a shrinking market – faced by a strong and mounting social and political aversion to smoking, decades of public awareness campaigns, advertising restrictions that come ever closer to a complete ban and takeover of packaging space by health

warnings, and with the deleterious effects of smoking on health confirmed beyond doubt by the medical community, in the developed world each successive generation has a lower percentage of those who even try smoking, and a considerable number of former smokers quit each year. The customers who remain are rather unlikely to smoke more than their forebears, and gains on price increases are made unlikely by heavy and regularly climbing taxation, which likely absorbs most of the customer base's real wealth growth and willingness to pay.

Figure 1: Key firm indicators in the sin industries

	Market cap	Sales	ROA	Excess return	Growth	M/B	Risk	Industry size
Sin Industries	7.027	6.685	0.072	0.047	0.187	2.166	0.109	18.0
SD from mean	0.92	0.43	1.00	0.07	0.90	0.44	-0.04	
rank	6.5	17.5	3.5	21.5	7.5	11.5	27.5	
Alcohol	7.926	7.586	0.088	0.037	0.053	2.384	0.075	7.1
SD from mean	2.28	1.67	1.51	-0.18	-0.86	0.83	-1.62	-0.82
rank	2	2	2	30	37	8	44	35
Tobacco	9.306	8.383	0.173	0.062	0.011	3.878	0.062	2.6
SD from mean	4.37	2.78	4.07	0.49	-1.42	3.48	-2.20	-0.97
rank	1	1	1	13	45	1	45	46
Gambling	6.053	5.855	0.039	0.047	0.291	1.641	0.135	8.3
SD from mean	-0.56	-0.72	0.00	0.07	2.27	-0.49	1.21	-0.78
rank	34	37	26	21	3	28	5	34
Mean of 46 ind.	6.422	6.375	0.039	0.044	0.118	1.917	0.109	30.8
St. dev. of 46 ind.	0.661	0.723	0.033	0.036	0.076	0.563	0.021	29.1

Table reports industry mean values of selected firm-level indicators and industry size. First line for each industry reports industry mean value, which is the mean over all firms in industry in the sample of the means for each firm in industry over that firm's time in sample. Second line is the distance from the mean of 46 such industry means (one for each industry in the sample), expressed in multiples of the standard deviation of the same set of 46 industry means. Third line is the rank of that industry's mean value among the 46 industry mean values calculated; largest value is ranked 1, smallest 46. The *Sin Industries* aggregate category is given a half rank, as it is not an industry per se, but rather the combination of the alcohol, gambling, and tobacco industries. This rank falls between the ranks of the two industries with the next higher and lower values. *Mkt. cap* is the natural logarithm of market capitalization. *Sales* is the natural logarithm of total sales for the fiscal year. *ROA* is the net return on assets (*income before extraordinary items*over *total assets*). *Excess ret.* is net return above the market return for the fiscal year. *Growth* is the net growth of total sales between current and previous fiscal year. *M/B* is the ratio of market capitalization to book equity. *Risk* is the standard deviation of monthly returns over the 12 months of the current fiscal year. *Ind. size* is the mean annual number of firms in industry in the sample.

Thus, sin firms appear a balance of the protective prosperity effects of the addiction or habit that their products cause, and the wealth-effacing effects of the public backlash against the immorality of earning a living in such a manner. That is very much in line with my hypotheses in this thesis, as it is an aspect of that very tension – profit on one side, morality on the other – that I explore further on. For the moment, though, investors appear to retain their confidence in sin firm prospects. Although social aversion impedes sin firms' growth, the 'loyal' customer base cushions their risks, and their profits appear to be significant despite the impediment of their sin status. While the future of the tobacco industry in particular may appear bleak, its market-to-book ratio is second to none, suggesting that for the moment public adversity has not yet eroded the steady income stream from the dependent customer base. Alcohol firms are also valued well above the norm in terms of M/B. However, gambling valuations are mediocre, suggesting that its risk-growth profile is less attractive to cautious investors than the stable-though-stagnant profile of alcohol and tobacco.

5.2. The Sin Premium

I document a significant and consistent premium in executive compensation in sin firms (Table 3). The estimated premium is the largest ($577,038 per annum, inflation-adjusted) and the most significant (*t*-stat 7.84) for my main sin firm definition (*SIN1*) based on company-wide SIC industry classification. The premium makes up approximately 31% of mean total compensation of *SIN1* executives (in simple statistics, *TDC1* compensation is 76% higher in *SIN1* than elsewhere, but controls seem to absorb part of the difference). The mean ratio of unexplained to explained compensation (*Residual Compensation Share*, *RCS*) is higher by 38.2 percentage points in *SIN1* than in the rest of the sample. The premium decreases as I broaden the definition to *SIN2*, which also includes firms with at least one sin segment (470,124, *t*-stat 7.53), and further decreases when I use the *SIN3* definition, which additionally includes firms with any other involvement in sin activities (332,412, *t*-stat 6.51). Firms that qualify for *SIN2* but not *SIN1* have a premium of 194,249 USD (*t*-stat 1.87), while those that belong to *SIN3* but not *SIN2* do not have a significant premium (-22,273, *t*-stat -0.30). Similar results are found in Novak and Bilinsky (2014).

Table 3: Sin Premium in Executive Compensation

	TDC1	*TDC1*	*TDC1*	*TDC1*	*TDC1*	*SALARY*	*BONUS*	*ODC*
	coef/t	**coef/t**	**coef/t**	**coef/t**	**coef/t**	**coef/t**	**coef/t**	**coef/t**
SIN1	577.038***			579.638***		60.963***	81.355***	431.111***
	(7.84)			(7.87)		(8.37)	(6.08)	(7.07)
SIN2		470.124***						
		(7.53)						
SIN3			332.412***					
			(6.51)					
SIN2R				194.249*				
				(1.87)				
SIN3R				-22.273				
				(-0.30)				
TOB1					938.018***			
					(4.52)			
GAM1					323.174***			
					(3.76)			
ALC1					742.960***			
					(5.95)			
CAP_{t-1}	189.373***	189.849***	189.799***	189.424***	189.334***	8.497***	14.034***	161.827***
	(22.34)	(22.25)	(22.11)	(22.32)	(22.50)	(15.82)	(13.96)	(22.55)
$SALE_{t-1}$	152.948***	152.630***	153.497***	152.643***	148.338***	22.124***	21.104***	102.088***
	(16.10)	(16.02)	(16.05)	(16.08)	(15.53)	(28.87)	(16.22)	(12.70)
$SALES\_GR_t$	369.036***	366.705***	368.192***	367.938***	369.242***	10.836***	50.445***	279.766***
	(17.10)	(17.02)	(17.08)	(17.09)	(17.12)	(10.92)	(18.77)	(14.52)
$SALES\_GR_{t-1}$	107.924***	107.706***	108.452***	107.689***	111.171***	-3.060***	1.020	97.784***
	(6.54)	(6.53)	(6.58)	(6.53)	(6.74)	(-3.63)	(0.51)	(6.80)
ROA_t	-262.772***	-263.027***	-263.655***	-262.873***	-262.156***	2.259	79.807***	-304.823***
	(-5.87)	(-5.87)	(-5.89)	(-5.87)	(-5.85)	(0.87)	(14.12)	(-7.70)
ROA_{t-1}	-206.628***	-208.218***	-209.801***	-207.132***	-203.558***	-21.273***	-22.054***	-161.491***

	(-5.07)	(-5.11)	(-5.15)	(-5.09)	(-5.00)	(-8.55)	(-4.23)	(-4.43)
XRET$_t$	220.449***	221.072***	220.905***	220.534***	219.671***	5.984***	41.246***	166.581***
	(18.16)	(18.20)	(18.17)	(18.16)	(18.09)	(9.23)	(26.50)	(15.32)
XRET$_{t-1}$	49.159***	48.363***	47.899***	48.990***	50.013***	1.742**	17.847***	24.530**
	(4.04)	(3.97)	(3.93)	(4.02)	(4.10)	(2.46)	(10.99)	(2.27)
SD_RET$_{t-1}$	1,682.567***	1,688.661***	1,696.475***	1,682.746***	1,696.129***	38.917***	65.599***	1,517.501***
	(20.12)	(20.18)	(20.26)	(20.12)	(20.38)	(6.37)	(5.85)	(20.61)
MB$_{t-1}$	90.265***	91.335***	91.858***	90.491***	88.125***	-1.398***	-2.294***	91.182***
	(11.41)	(11.54)	(11.60)	(11.43)	(11.10)	(-3.33)	(-2.63)	(13.19)
CEO	1,146.146***	1,146.221***	1,146.220***	1,146.142***	1,145.303***	144.794***	130.163***	851.819***
	(43.52)	(43.54)	(43.52)	(43.53)	(43.50)	(68.05)	(29.95)	(38.57)
CEO_SW	341.580***	339.975***	340.198***	341.151***	341.687***	9.371*	5.251	318.684***
	(4.70)	(4.68)	(4.68)	(4.69)	(4.70)	(1.95)	(0.40)	(5.18)
CEO_SSW	979.131***	1,016.792***	1,080.704***	973.132***	1,032.520***	45.170	93.415*	749.105**
	(2.89)	(3.00)	(3.20)	(2.86)	(3.26)	(1.48)	(1.79)	(2.49)
FFSIZE	54.961***	51.893***	46.677***	55.528***	56.664***	-0.452	-7.550***	63.845***
	(6.04)	(5.67)	(5.13)	(6.09)	(6.22)	(-0.62)	(-5.29)	(8.49)
G-index	-16.189***	-16.367***	-16.780***	-16.117***	-15.698***	-0.535**	-1.381***	-13.163***
	(-6.26)	(-6.32)	(-6.48)	(-6.23)	(-6.03)	(-2.43)	(-3.30)	(-6.23)
MSHARE	313.026***	314.048***	311.197***	313.831***	321.606***	26.033***	35.502***	242.797***
	(15.15)	(15.19)	(15.04)	(15.19)	(15.47)	(17.78)	(12.38)	(14.00)
JOB_NO	138.029***	135.808***	136.456***	137.208***	138.295***	-6.522***	11.089**	122.833***
	(4.56)	(4.49)	(4.51)	(4.54)	(4.57)	(-2.92)	(2.09)	(4.84)
Time in sample	25.799***	25.920***	25.830***	25.869***	25.925***	5.740***	2.316***	18.434***
	(11.44)	(11.49)	(11.45)	(11.47)	(11.50)	(32.35)	(7.40)	(9.86)
intercept	-2,421.860***	-2,405.946***	-2,380.181***	-2,424.014***	-2,410.855***	-73.982***	-257.651***	-2,208.342***
	(-30.64)	(-30.31)	(-30.14)	(-30.65)	(-30.47)	(-11.69)	(-21.00)	(-33.36)
year fixed effects	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
Observations	*123,413*	*123,413*	*123,413*	*123,413*	*123,413*	*139,038*	*139,038*	*123,413*
Adjusted R2	*0.387*	*0.387*	*0.387*	*0.387*	*0.388*	*0.551*	*0.261*	*0.336*

note: *** p<0.01, ** p<0.05, * p<0.1

Table 3: Premium in executive compensation in sin firms

Table shows the estimate of the premium in executive compensation in sin firms (various sin firm definitions and categories, see Section 3). Sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity and/or negative TDC1 compensation. Sin involvement dummies are defined in Section 3. TDC1 is ExecuComp (EC) item total direct compensation; SALARY is EC item salary; BONUS is EC item bonus; ODC is other direct compensation. CAP is market capitalization. SALE is the natural logarithm of total sales. SALES_GR is the growth of sales. ROA is return on assets. XRET is excess return. SD_RET is the standard deviation of firm monthly stock returns for the fiscal year. MB is the market-to-book ratio. CEO is a dummy equal to 1 if executive is CEO in the fiscal year, 0 otherwise. CEO_SW is a dummy equal to 1 if executive is CEO in the fiscal year and has at least 1 other job (CEO or not) on record in sample; 0 otherwise. CEO_SSW is a dummy equal to 1 if executive is CEO in a SIN1 firm in the fiscal year and has at least 1 other job (CEO or not, sin or not) on record in sample; 0 otherwise. FFSIZE is the natural logarithm of the number of firms in the industry for the fiscal year. G-index is the Gompers-Ishii-Metrick (2003) corporate governance quality index. MSHARE is the natural logarithm plus one of relative market share. JOB_NO is the serial number of executive's employment in the sample (1st, 2nd, etc.). Time in sample is the total number of years the executive has been present in the sample up until the year in question. All financial variables and returns are adjusted for CPI inflation. All continuous variables except FFSIZE are Winsorized at 1% (two-sided). Estimation method is least squares regression with year fixed effects (not shown; baseline year automatically selected by Stata software) and standard errors clustered at the firm-executive combination level.

Consistent with my expectations (as well as with Novak and Bilinsky, 2014) the premium is the largest for the tobacco industry (938,018, *t*-stat 4.52) where I expect the perceived sinfulness to be the strongest; it is somewhat smaller for the alcohol industry (742,960, *t*-stat 5.95) and smaller yet for the gambling industry (323,174, *t*-stat 3.76). In my sample 12 out of the 46 non-financial industries exhibit a statistically significant (at 5%) positive premium in executive compensation, hence the probability to find a premium in three randomly selected industries is about 1.4% (at 10% significance, 14 industries have significant positive premia, and the corresponding probability is 2.4%).[4] In addition, the premia in tobacco and alcohol are larger than in any other industry; gambling ranks eighth out of 46. Finally, all three sin industries are among the only 7 industries with positive RCS (probability of random selection: 0.2%).

Decomposing total compensation I observe a significant premium in all three components, salary (60,963, *t*-stat 8.37), bonus (81,355, t-stat 6.08), and other direct compensation (431,111, t-stat 7.07). When distinguishing between CEOs and other executives, the estimated premium in *SIN1* is about 1.3 times higher for CEOs than non-CEOs (720,067 USD, $t = 3.88$ vs. 552,475 USD, $t = 8.87$). Mean total compensation of CEOs in the sample is about 2.6 times that of non-CEOs (2.4 times in *SIN1* and 2.7 times outside it); the fitted value of compensation for CEOs

[4] This probability is obtained as the number of ways that 3 can be selected out of 12, over the number of ways that 3 can be selected out of 46 (both without regard for order and without repetition), which can be expressed as $(12!/3!\,9!)(3!\,43!/46!)$, or in general $(m!/k!\,(m-k)!)(k!\,(n-k)!/n!)$, where n is the total number of industries (46), m is the number of industries sharing the trait in question (here: significant positive premia; 12 industries at 5%, 14 at 10%), and k is the number of industries being selected (here: three).

is 2.4 times that of non-CEOs (2.1 times in *SIN1* and 2.4 times outside it). This suggests the premium partially scales with total compensation between CEOs and non-CEOs, making up a greater portion of total compensation for sin non-CEOs (40%) than for sin CEOs (22%). Novak and Bilinsky (2014) have similar results.

5.3. Executive Compensation and Job Change

I next look at changes in the compensation of executives who switch employers, as any compensation for individual characteristics would be expected to remain through such a transition. There are 2,316 executives who change jobs (7.3%) and 2,426 switch events (some executives switch jobs more than once) in my sample. As can be seen in Figure 2, the RCS of executives who hold more than one job in the sample is about 10.3 percentage points (pp.) higher than that of executives with only a single job on record. Among the job-switching executives ('switchers'), the mean RCS of those who work in *SIN1* is a further 32.9 pp. higher than for those who have never worked in sin (recall that on the full sample of executives mean RCS is 38.2 pp. higher in *SIN1* than on the rest of the sample). When executives who at some point are employed in *SIN1* work outside sin on a different job, their mean RCS is 4.3 pp. *below* that of 'switcher' executives who have never worked in sin (not tabulated), for a total RCS difference of 36.7 percentage points between job-changing *SIN1* executives while they work in sin and those same executives while they work elsewhere. By industry, RCS differences of switchers between when they work in the sin industry in question and when those same executives work outside of sin (switches to a different sin industry are not considered 'outside' in this instance) amount to 21.9 percentage points in *TOB1*, 62.2 pp. in *GAM1*, and 42.6 pp. in *ALC1*, all positive, i.e. the proportion of unexplained to explained compensation is higher for the sin job.

Figure 2: RCS of job switchers in sin and elsewhere

	in sin	elsewhere	difference
Sin Industries Switcher	0.257	-0.110	**0.367**
observations	*192*	*108*	
Alcohol Switcher	0.231	-0.195	**0.426**
observations	*59*	*66*	
Gambling Switcher	0.144	-0.478	**0.622**
observations	*92*	*17*	
Tobacco Switcher	0.549	0.330	**0.219**
observations	*41*	*30*	

	non-switcher	switcher	difference
Switcher	-0.171	-0.067	**0.103**
observations	*109,913*	*13,500*	

Table shows the *Residual Compensation Share* (RCS) of job-switching executives who at some point in their career work in sin. First column shows the mean RCS in observations where these individuals work in sin (and component industries). Second column shows mean RCS of observations where they work outside of sin. Last column shows the difference between the two. Annex of table (under the separator) shows the difference in RCS between executives who have only one job in the sample ('non-switcher') and executives who have more than one ('switcher').

As a robustness check, I also compare mean RCS over employment (mRCS; an employment is the time an executive spends with one firm in the sample, with re-hires counting as separate employments). I use one observation per employment of mRCS to obtain category means of mRCS. The mRCS of switchers while they are in *SIN1* is 49.6 pp. higher than the mRCS of the same individuals while they are elsewhere. When switches which include promotion to/demotion from CEO are excluded, the *SIN1*-elsewhere switcher mRCS differential is 66.7 pp. By industry, the mRCS method unfortunately leaves too few observations in some of the sin industries for the estimates to be reliable. The RCS auxiliary regression is analogous to the regression whose output is seen in Table 3, but sin dummy variables are not used.

Finally, I compute the change in estimated premium in each job switch out of industry (*Outside Switch Premium Difference*, OSPD – the premium in the destination less the premium in the source industry; premium assumed to be zero when estimate is insignificant) and calculate the

mean of this change by source industry. I use a regression analogous to that seen in Table 3, but with the sin dummies replaced by industry dummies for the 46 industries in the sample. I estimate a separate regression for each industry. The mean OSPD for the sin industries (*SIN1*) is -580,215 USD; by industry mean OSPD is -780,883 (rank 46 out of 46 industries, i.e. largest negative) for tobacco, -673,089 (rank 45) for alcohol, and -156,648 (rank 36) for gambling. The value for the *SIN1* aggregate falls between ranks 43 and 44. While several industries besides the sin industries have significant positive premia, the OSPD results suggest that outgoing sin switcher executives give up most of their industry-specific compensation, i.e. that they do not seek out other industries with premia in a job change. The results presented in this section (particularly the RCS results) suggest that the premium is idiosyncratic to the sin industries. Individuals who have both sin and non-sin jobs on record receive significantly more unexplained compensation, relative to total, in the sin job than in the non-sin job(s). This suggests that the premium observed in sin firms is related to the 'nature' of the firm, rather than that of the executive.

5.4. Executive Retention and Migration Patterns

In this section I address the possibility that the sin premium is due to a quality of executives that is uniquely valuable to sin firms. Such a situation would permit the results discussed in Chapter 5.3, while the mechanism would be only peripherally related to a "cost of sin". Essentially, executives would be paid for their skills, not for bearing the stigma of working in sin. If sin firm executives were paid a premium for a quality or trait that is only valuable or more valuable in sin firms, they would have incentive to stay, as they would not be able to obtain the same compensation for their unique skills elsewhere. The firms themselves would also have less incentive to dismiss executives, as finding replacements with the particular skills they need would probably be more difficult than for firms that have no need of such skills. While it is hard to distinguish whether an executive leaves voluntarily or not (firms are generally not required to disclose the circumstances of executives' departure), in this case both forces would act in the same direction: towards higher retention of executives in sin firms.

I find no support for the hypothesis that sin firm executives are retained more than others; in fact, several of my results indicate they are more likely than others to leave. Sin executives have shorter tenure than other executives, approximately by 0.7 years in *SIN1* (t = -2.40). The result

is the most prominent in the tobacco industry (-1.327, t = -6.69). They are also on average younger, by approximately 0.9 years in *SIN1* (t = -1.60). Again the result is strongest in tobacco (-1.901, t = -1.82). It is likely that the lower mean age is related to the shorter tenure. Job switch events in sin firms are more frequently departures than arrivals: The ratio of departures to arrivals in *SIN1* is approximately 1.5:1 (ignoring executives who switch jobs within the same industry); there are no job switches from one sin industry to another in the sample. It is possible that departures have a tendency to dominate arrivals in small industries because larger industries generally offer better or more job opportunities (Coles et al., 2012). Indeed, the average change in industry size rank (where 'size' is the average annual number of firms in an industry in my sample) in a job switch in my sample is 0.75, that is, the destination industry is on average larger (though not by much) than the source industry. Disregarding the zero-change within-industry switch events, the rank change increases to 1.37. In absolute numbers, out of the 2,426 switch events in my sample, 1,099 (45%) are switches into the same industry, 716 (30%) are switches into a larger industry, and 611 (25%) are switches into a smaller industry. There are therefore 105 (17.2%) more switches into larger industries than there are into smaller industries. My data thus supports the assertion of Coles et al. (2012) that executives migrate towards larger industries.

This is potentially relevant because all the sin industries are quite small: By average annual number of firms in my sample they rank tobacco 46th, alcohol 35th, gambling 34th (out of 46), and none of them reach 10% of the average of the 5 largest industries. Even the combined size of the three sin industries would only rank between 27th and 28th. By number of unique executives on record for each industry the results are very similar. To assess the degree to which the observed outflow of executives may be caused by industry size, I look at job switches in greater detail, tracking source and destination industry for each event. For each industry, I calculate 'net flux' of switching executives as $\mathcal{F} = (A - D)/A$, where D is the number of executives who departed the industry for a different industry, and A is the number of executives who entered the industry from a different industry. Executives switching jobs within industry are disregarded. The correlation between this measure and industry size is only 0.2, however, and both high influx and high outflux seem to be concentrated in small industries; large industries have mostly balanced flux. Of course, this may simply be because the scaling variable (A) tends to be large in large industries, and thus higher absolute flux ($A - D$) can still produce a relatively small $\mathcal{F}$. When flux is expressed as a function of the total number of executives in

an industry, $F = (A - D)/N$, the correlation with firm size is only 0.06, although the same caveat as before applies. The mean of $\mathcal{F}$ over the set of 46 industries is somewhat negative, which is expected if executives tend to move to larger industries (where they will not increase $\mathcal{F}$ as much as they decrease it in the smaller industries they leave). $\mathcal{F}$ in all three sin industries is negative below this mean. That is in line with predictions based on industry size, and does not support predictions based on increased executive retention in sin industries.

When estimated by regression, the industry-specific probability of joining a sin industry is negative, while the industry-specific probability of leaving is positive. Both estimates are statistically insignificant, however. This may be due at least partly to the small number of switch events observed for many industries (including the sin industries); the few significant estimates in these by-industry regressions are concentrated mostly in industries where switch events are relatively numerous. Estimates of the industry-specific probability of an executive having more than one job (regardless of whether they are joining or leaving the industry in question) are also insignificant in the sin industries. The probability of more than one job appears well-correlated with the industry-specific compensation premium (of which the sin premium is a particular example), but only when both estimates are significant (*Corr* = 0.74). This remains true when 'more than one job' is split into joining (*Corr* = 0.64) and leaving (*Corr* = 0.60) an industry. The latter is somewhat puzzling, as I would expect the correlation between premium and leaving to be negative, if any. One possible explanation is that industries with negative premia are 'unattractive' industries, and this limits their executives' options for a job elsewhere, which would be in line with the *industry tournaments* hypothesis of Coles et al. (2012).

To investigate how industry attractiveness is related to executive migration, I construct the 'Industry Attractiveness Score' (IAS). This score is an equal-weighted, zero-mean natural index incorporating firm size and profitability and 'abnormal' executive compensation (i.e., the industry-specific premium). $IAS = dev(iCAP) + dev(iROA) + dev(iPr)$, where *dev* denotes deviation of industry value from the mean of industry values, scaled by the standard deviation of the set of industry values, $dev(x) = (x - \bar{x})/\sigma_x$, *iCAP* is industry mean market capitalization, *iROA* is industry mean ROA, and *iPr* is the estimate of industry-specific premium (actual estimate is used, regardless of its statistical significance). Industry mean ROA and market cap are calculated by taking the mean for each firm over all years available, then averaging the result over the industry. The rationale behind this index is to create an uncomplicated rule-of-thumb measure that incorporates elements important to (absolute)

executive compensation, and thus probably important for the attractiveness of a firm to executives looking for employment. If executives also derive personal status from the stature of the firm they work for as suggested by Coles et al. (2012), the size and profitability components of IAS probably capture some of this 'non-pecuniary attractiveness' as well.

It is noteworthy that the three sin industries have the three highest IAS scores (tobacco 9.9, alcohol 4.9, gambling 3.2). That means that work in these industries should be a very attractive proposition for executives, at least in terms of expected compensation. It also paints a picture of the sin industries as small, but composed of large, profitable firms that pay well (this is discussed in greater detail in Chapter 5.1). Unfortunately, the IAS is largely uncorrelated with either the probability of an industry attracting a job-switching executive, or of producing one (although the latter correlation is actually somewhat stronger than the former). Even so, the high potential compensation that sin industry IAS implies would be expected to make sin firms a 'destination' industry, rather than a 'source' one. The switcher flux data indicate the opposite, however, further strengthening the impression that sin executives are not 'retained', despite the apparent *prima facie* attractiveness of their industries. Note that the 'attractiveness' implied by IAS is ultimately based on purely material indicators; it has no direct relation to 'prestige' as examined by Maug et al. (2014), or to 'sinfulness'. High IAS therefore does not contradict the possible presence of a stigma in sin firms.

While sin firm executives who leave the sin industries lose the majority of the industry-specific compensation premium (the sin premium, in this case), their total compensation nonetheless increases. While this is true for most job changes (the average increase in mean over tenure of *TDC1* in an out-of-industry job switch is 444,228 USD), in the sin industries this increase is considerably higher: 897,600 USD for *SIN1*. The tobacco industry exhibits the largest such increase of all industries in the sample at 3,101,771 USD. These figures are generally somewhat inflated due to the fact that a non-negligible portion of switch events are coupled with promotion to CEO in the new job (17.6% on the full sample; demotions in switch are less common at 6.5%). Furthermore, switch CEO promotions are significantly more common in sin firms: 39.4% in SIN1 (alcohol 58%, tobacco 50%, gambling 15%). The rates for alcohol and tobacco are the highest in the sample. (These figures only include switches out of industry.) When only out-of-industry switch events that do not include promotion or demotion (i.e., only non-CEO to non-CEO or CEO to CEO switches) are used, the average job switch increase in *TDC1* in the sample is largely unchanged at $418,466. The sin industries however come much

closer to the global mean, at $452,323 in *SIN1* (tobacco 1,181,364; alcohol 753,578; gambling shows essentially zero change at -5,573). Fee and Hadlock (2003) find that CEO switch promotions are related to firm stock performance; however, I do not find stock returns in sin industries to be systematically elevated (sin industries rank in mean excess return tobacco 13th, gambling 21st, and alcohol 30th out of 46).

These results suggest that sin firm executives have good employment options outside the sin industries, and that while they lose the specific premium, they likely manage to recoup the loss, and more, in compensation attributable to more generic firm traits (traits represented by the control variables of the RCS source regression, given that RCS decreases in these switches). Also of interest is sin executives' statistically elevated chance of being promoted in the switch. Both findings suggest that whatever stigma sin executives may bear by association with sin firms does not 'follow' them in their further career. In fact, a position at a sin firm, already well paid, seems to be a good 'launch pad' for even higher-paying jobs. This likely goes a long way towards explaining why sin firm executives have a relatively high tendency to leave the sin industries. The migration pattern results as a whole do not decisively rule out sin-specific skills as the cause of the premium, but neither do they in any way support that explanation. Indeed, the executive migration patterns in sin firms seem to correspond to predictions based on these firms' size, profitability, and other 'normal' compensation determinants, and on the small size of the sin industries. They do not appear indicative of any 'abnormal' influences of sin status on executive migration, either towards retention or against it. I next look at the activities of executives as outside directors in other firms in order to better understand sin executives' career considerations.

5.5. Executives as Outside Directors

Outside directorships – director seats on boards of other firms – are an important part of an executive's professional life. Besides the supplemental income associated with them, executives seem to treat directorships as 'marks of status', and a 'successful' executive is more likely to hold more outside directorships. In the previous subchapters I have found that sin firms are large and profitable, and that sin firm executives seem to have good career prospects should they decide to switch jobs. Given these results it is unlikely that any potential sin stigma 'holds onto' executives once they leave sin firms, or limits their post-sin career options. Investigating

outside directorships held by sin executives can provide insight into additional effects the hypothesized stigma may have on executives' professional lives while they work in sin firms.

I find that sin firm executives are significantly less likely to hold any outside directorships at all (Table 4). The effect is strongest in the tobacco industry, then gambling. In the alcohol industry, executives are actually somewhat more likely to hold directorships; however, when they do hold directorships, their number is no higher than for non-sin executives. Tobacco executives hold fewer directorships even if they hold at least one (in fact, no tobacco executive in the sample holds more than one outside directorship at any given time). Novak and Bilinsky (2014) have similar results. These results come from regressions controlled for 'home' firm characteristics (which may be relevant to directorial appointments according to Kaplan and Reishus, 1990) and some career characteristics of executives (the control set is the same as for the compensation regressions). In terms of sample statistics, the sample mean unconditional likelihood of holding at least one outside directorship is about 5.0% per executive-year (mean of binary indicator over all executive-years in industry). In the sin industries it is 7.1%; 13.3% alcohol, 2.6% tobacco, and 2.3% gambling. The sample mean number of outside director seats held per executive-year when at least one directorship is held is 1.22; in *SIN1* it is 1.20 (alcohol 1.23, gambling 1.10, tobacco 1.0). These results suggest that with the exception of alcohol, sin industry executives are significantly less active as outside directors in other firms.

Outside directorships are primarily of value to the executive. However, from the point of view of the firm I believe they could also be valuable, in particular as a source of connections to other business professionals. I define executives' *Outside Directorial Connections Network* (ODCN) as the number of unique directors (regardless of whether executive or non-executive) that an executive sits with on all boards of directors they are a member of in a given year, excluding the board of the 'home' firm (the firm for which they are an executive). For sin firms, these connections could have even more value than elsewhere, as sin firms have been shown to face various repercussions stemming from their violation of social norms. Probably the most relevant to the point are the findings of Beneish et al. (2008), who suggest political connections as one of the main defense mechanisms of tobacco firms facing the risk of public expropriation. While connections to public office holders are presumably different from connections to directors, I believe there is enough similarity for the hypothesis that such networks are valuable to firms in general, and more valuable to sin firms in particular, to be plausible. In fact, ODCN

could be considered a likely example of the kind of 'sin-specific skill' mentioned in the previous subchapter.

Table 4: Probability of Outside Directorships

	ANY_DIR	***ANY_DIR***	***ANY_DIR***	***ANY_DIR***	***ANY_DIR***
	coef/t	**coef/t**	**coef/t**	**coef/t**	**coef/t**
SIN1	-0.205***			-0.208***	
	(-3.55)			(-3.59)	
SIN2		-0.211***			
		(-4.13)			
SIN3			-0.170***		
			(-4.05)		
SIN1					
SIN2R				-0.222**	
				(-2.09)	
SIN3R				-0.026	
				(-0.39)	
TOB1					-0.987***
					(-5.67)
GAM1					-0.579***
					(-4.93)
ALC1					0.168**
					(2.31)
CAP_{t-1}	0.091***	0.091***	0.091***	0.091***	0.093***
	(10.19)	(10.19)	(10.20)	(10.18)	(10.45)
$SALE_{t-1}$	0.079***	0.080***	0.079***	0.080***	0.076***
	(7.60)	(7.65)	(7.60)	(7.64)	(7.22)
$SALES\_GR_t$	-0.056*	-0.054*	-0.055*	-0.054*	-0.056*
	(-1.92)	(-1.84)	(-1.86)	(-1.83)	(-1.92)
$SALES\_GR_{t-1}$	-0.090***	-0.090***	-0.090***	-0.090***	-0.087***
	(-3.57)	(-3.57)	(-3.56)	(-3.57)	(-3.45)
ROA_t	-0.170**	-0.170**	-0.169**	-0.169**	-0.171**
	(-2.05)	(-2.05)	(-2.05)	(-2.05)	(-2.07)
ROA_{t-1}	-0.048	-0.048	-0.046	-0.048	-0.045
	(-0.55)	(-0.55)	(-0.53)	(-0.55)	(-0.52)
$XRET_t$	0.038*	0.038*	0.038*	0.038*	0.039*
	(1.66)	(1.66)	(1.66)	(1.66)	(1.72)
$XRET_{t-1}$	-0.043*	-0.043*	-0.043*	-0.043*	-0.041*
	(-1.88)	(-1.89)	(-1.87)	(-1.89)	(-1.77)
SD_RET_{t-1}	0.006	0.007	0.004	0.007	0.063
	(0.04)	(0.05)	(0.03)	(0.05)	(0.44)
MB_{t-1}	0.013**	0.013*	0.013*	0.013*	0.011

	(1.97)	(1.93)	(1.87)	(1.92)	(1.57)
CEO	0.920***	0.920***	0.920***	0.920***	0.920***
	(59.97)	(59.96)	(59.96)	(59.96)	(59.94)
CEO_SW	0.094***	0.095***	0.095***	0.095***	0.094***
	(2.95)	(2.98)	(2.97)	(2.98)	(2.95)
CEO_SSW	-0.207*	-0.200	-0.219*	-0.201	-0.057
	(-1.65)	(-1.60)	(-1.75)	(-1.60)	(-0.43)
FFSIZE	-0.108***	-0.109***	-0.107***	-0.109***	-0.110***
	(-12.51)	(-12.67)	(-12.61)	(-12.57)	(-12.74)
G-index	0.030***	0.030***	0.030***	0.030***	0.032***
	(11.51)	(11.48)	(11.50)	(11.46)	(12.17)
MSHARE	0.125***	0.124***	0.126***	0.124***	0.128***
	(7.91)	(7.84)	(7.97)	(7.85)	(8.03)
JOB_NO	0.255***	0.256***	0.255***	0.256***	0.254***
	(14.21)	(14.25)	(14.24)	(14.25)	(14.18)
Time in sample	0.055***	0.055***	0.055***	0.055***	0.055***
	(30.80)	(30.78)	(30.79)	(30.78)	(30.78)
intercept	-3.670***	-3.669***	-3.673***	-3.669***	-3.669***
	(-44.78)	(-44.80)	(-44.90)	(-44.75)	(-44.71)
year fixed effects	*YES*	*YES*	*YES*	*YES*	*YES*
Observations	*114,947*	*114,947*	*114,947*	*114,947*	*114,947*
Adjusted R2	*0.220*	*0.220*	*0.220*	*0.220*	*0.221*

note: *** p<0.01, ** p<0.05, * p<0.1

Table 4: Probability of executive holding at least one outside directorship
Table shows the estimate of the probability that executive has at least one outside directorship in a given year (various sin firm definitions and categories, see Section 3). Sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity and/or negative TDC1 compensation. Sin involvement dummies are defined in Section 3. ANY_DIR is a dummy equal to 1 if executive has at least one outside directorship, 0 otherwise. CAP is market capitalization. SALE is the natural logarithm of total sales. SALES_GR is the growth of sales. ROA is return on assets. XRET is excess return. SD_RET is the standard deviation of firm monthly stock returns for the fiscal year. MB is the market-to-book ratio. CEO is a dummy equal to 1 if executive is CEO in the fiscal year, 0 otherwise. CEO_SW is a dummy equal to 1 if executive is CEO in the fiscal year and has at least 1 other job (CEO or not) on record in sample; 0 otherwise. CEO_SSW is a dummy equal to 1 if executive is CEO in a SIN1 firm in the fiscal year and has at least 1 other job (CEO or not, sin or not) on record in sample; 0 otherwise. FFSIZE is the natural logarithm of the number of firms in the industry for the fiscal year. G-index is the Gompers-Ishii-Metrick (2003) corporate governance quality index. MSHARE is the natural logarithm plus one of relative market share. JOB_NO is the serial number of executive's employment in the sample (1st, 2nd, etc.). Time in sample is the total number of years the executive has been present in the sample up until the year in question. All financial variables and returns are adjusted for CPI inflation. All continuous variables except FFSIZE are Winsorized at 1% (two-sided). Estimation method is probit regression with year fixed effects (not shown; baseline year automatically selected by Stata software).

Keeping that in mind, my results suggest that the ODCN of sin firm executives is significantly smaller than that of executives elsewhere. A regression controlling for firm and executive characteristics (again, the same control set as for compensation) confirms this, finding that the ODCN of tobacco executives is smaller by 1.27 individuals (t = -4.10); 0.81 individuals for gambling (t = -4.59). The ODCN industry-specific size modifier estimate for alcohol is not statistically significant (Table 5). Similar results can be found in Novak and Bilinsky (2014).

The mean ODCN in the sample is 0.67 individuals per executive-year, so the magnitude of the sin industry estimates is significant. These results include executive-years with no ODCN. The sample mean ODCN for executive-years with non-zero ODCN is 11.0 individuals. It is 14.3 in SIN1 (alcohol 15.3, tobacco 10.1, gambling 10.1), but in a regression sin industry-specific effects are not significant, suggesting generic firm and executive characteristics can explain most of the differences here. Therefore, the main specific factor limiting sin executive directorial activities seems to be their idiosyncratically lower likelihood of holding outside directorships in the first place, and in the case of tobacco executives also the smaller number of seats held by those who hold some.

Table 5: Executive Connection Networks

	ODCN	**ODCN**	**ODCN**	**ODCN**
	coef/t	**coef/t**	**coef/t**	**coef/t**
SIN1	-0.070			
	(-0.21)			
SIN2		-0.135		
		(-0.56)		
SIN3			-0.171	
			(-0.98)	
TOB1				-1.268***
				(-4.10)
GAM1				-0.810***
				(-4.59)
ALC1				1.165
				(1.52)
CAP_{t-1}	0.114***	0.115***	0.115***	0.122***
	(6.16)	(6.15)	(6.18)	(6.33)
$SALE_{t-1}$	0.062**	0.062**	0.062**	0.048*
	(2.55)	(2.57)	(2.56)	(1.93)
$SALES\_GR_t$	-0.068*	-0.067*	-0.067*	-0.070*
	(-1.86)	(-1.84)	(-1.84)	(-1.92)
$SALES\_GR_{t-1}$	-0.127***	-0.127***	-0.127***	-0.121***
	(-4.57)	(-4.56)	(-4.57)	(-4.42)
ROA_t	-0.137**	-0.137**	-0.137**	-0.132**
	(-2.15)	(-2.15)	(-2.14)	(-2.07)
ROA_{t-1}	-0.203***	-0.203***	-0.202***	-0.196***
	(-3.20)	(-3.19)	(-3.18)	(-3.09)
$XRET_t$	0.044**	0.045**	0.045**	0.046**
	(2.00)	(2.01)	(2.03)	(2.06)

XRET$_{t-1}$	-0.034	-0.034	-0.034	-0.032
	(-1.43)	(-1.43)	(-1.43)	(-1.36)
SD_RET$_{t-1}$	0.040	0.042	0.043	0.139
	(0.20)	(0.21)	(0.21)	(0.68)
MB$_{t-1}$	0.018	0.018	0.018	0.011
	(1.29)	(1.29)	(1.29)	(0.83)
CEO	1.666***	1.666***	1.667***	1.664***
	(19.45)	(19.45)	(19.45)	(19.44)
CEO_SW	1.020***	1.020***	1.020***	1.022***
	(3.62)	(3.62)	(3.61)	(3.62)
CEO_SSW	0.274	0.307	0.327	0.541
	(0.19)	(0.21)	(0.23)	(0.39)
FFSIZE	-0.127***	-0.130***	-0.132***	-0.131***
	(-4.38)	(-4.51)	(-4.58)	(-4.52)
G-index	0.034***	0.033***	0.033***	0.037***
	(4.69)	(4.66)	(4.64)	(5.08)
MSHARE	0.364***	0.363***	0.364***	0.375***
	(6.23)	(6.21)	(6.21)	(6.39)
JOB_NO	0.460***	0.460***	0.460***	0.460***
	(3.83)	(3.83)	(3.83)	(3.83)
Time in sample	0.069***	0.069***	0.069***	0.069***
	(11.83)	(11.82)	(11.82)	(11.81)
intercept	-1.837***	-1.824***	-1.817***	-1.817***
	(-7.79)	(-7.81)	(-7.84)	(-7.75)
year fixed effects	*YES*	*YES*	*YES*	*YES*
Observations	*114,947*	*114,947*	*114,947*	*114,947*
Adjusted R2	*0.117*	*0.117*	*0.117*	*0.118*

note: *** p<0.01, ** p<0.05, * p<0.1

Table 5: Size of executives' personal networks in sin firms

Table shows the estimate of the size of executives' personal networks (various sin firm definitions and categories, see Section 3). Sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity and/or negative TDC1 compensation. Sin involvement dummies are defined in Section 3. ODCN is the size of an executive's personal network, which is the number of distinct directors the executive sits with on the boards of firms where the executive is a director, other than the firm where the person is an executive. CAP is market capitalization. SALE is the natural logarithm of total sales. SALES_GR is the growth of sales. ROA is return on assets. XRET is excess return. SD_RET is the standard deviation of firm monthly stock returns for the fiscal year. MB is the market-to-book ratio. CEO is a dummy equal to 1 if executive is CEO in the fiscal year, 0 otherwise. CEO_SW is a dummy equal to 1 if executive is CEO in the fiscal year and has at least 1 other job (CEO or not) on record in sample; 0 otherwise. CEO_SSW is a dummy equal to 1 if executive is CEO in a SIN1 firm in the fiscal year and has at least 1 other job (CEO or not, sin or not) on record in sample; 0 otherwise. FFSIZE is the natural logarithm of the number of firms in the industry for the fiscal year. G-index is the Gompers-Ishii-Metrick (2003) corporate governance quality index. MSHARE is the natural logarithm plus one of relative market share. JOB_NO is the serial number of executive's employment in the sample (1st, 2nd, etc.). Time in sample is the total number of years the executive has been present in the sample up until the year in question. All financial variables and returns are adjusted for CPI inflation. All continuous variables except FFSIZE are Winsorized at 1% (two-sided). Estimation method is least squares regression with year fixed effects (not shown; baseline year automatically selected by Stata software) and standard errors clustered at the firm-executive combination level.

These results suggest that sin firms either do not or cannot take advantage of ODCN in their executives, even though it could be expected to be a valuable trait – possibly more valuable than in other industries (in particular with regard to Beneish et al., 2008). This is particularly striking in the tobacco industry, where prior research indicates ODCN should be the most valuable at least among the sin industries, but where my results show the highest tendency for ODCN to be small, as well as below-average absolute ODCN size. This suggests to me that perhaps the reduced directorial activity of sin executives is not the choice of the sin firms; I investigate sin firm directors in general to support that. For a director a 'home' firm generally cannot be established, as all directorships are presumed equal and about 80% of the directors in my Directorships sample do not have matching entries in the main Executives sample. Therefore, I define *Adjusted Outside Connections Network* (AOCN) as a modification of ODCN. The core logic is the same as in the Executives sample, except that for each director I obtain several values of ODCN in a given year, one for each board they sit on. If at least one of these boards is a sin firm board, AOCN is the ODCN where the sin firm is the 'home' firm. For directors with no sin appointments, AOCN is the mean of ODCN values for all boards they sit on that year. I then only count each director-year once, always choosing the sin directorship if available, and a random directorship if not.

Using this method, sample mean AOCN is 1.9 individuals. In *SIN1* it is 4.9 individuals (alcohol 7.1, tobacco 5.3, gambling 1.7). This includes director-years with no AOCN, i.e. those with only one directorship. When only director-years with positive AOCN are considered, the sample mean is 11.6 individuals. In *SIN1* the mean is 15.4 (alcohol 16.4, tobacco 14.3, gambling 12.6). When sin-specific AOCN is estimated by regression, estimates are significant positive in *SIN1* (3.03 individuals, $t = 6.73$), *TOB1* (3.48, $t = 4.25$) and *ALC1* (5.29, $t = 6.51$); *GAM1* is insignificant (Table 6). These estimates include observations with no AOCN, but estimates restricted to observations with non-zero AOCN yield very similar results. Higher sin director AOCN appears to be driven primarily by the number of other seats these directors hold within the sample: Using the same regression setup as for AOCN, *SIN1* directors hold 0.28 seats more than non-sin directors ($t = 6.52$); in *ALC1* it is 0.50 seats more ($t = 6.56$), in *TOB1* 0.33 seats more ($t = 3.99$), while in *GAM1* the estimate is insignificant. Sample mean number of seats per director-year is 1.21, keeping in mind that every director in the sample has by necessity at least one seat. *SIN1* directors also have 0.24 seats more ($t = 4.03$) when only directors with more than one seat are included (in which case the sample mean is 2.28 seats per director-year). These

results suggest that sin firm directors have more concurrent board seats and are well-connected, but that sin firm executives do not participate in these connections, being decidedly less active as directors than executives of other firms.

Table 6: Director Connection Networks

	AOCN	***AOCN***	***AOCN***	***AOCN***	***AOCN***
	coef/t	**coef/t**	**coef/t**	**coef/t**	**coef/t**
SIN1	3.027***			2.801***	
	(6.73)			(6.19)	
SIN2		2.668***			
		(7.20)			
SIN3			2.970***		
			(10.11)		
SIN2R				1.414***	
				(2.66)	
SIN3R				3.511***	
				(7.92)	
TOB1					3.479***
					(4.25)
GAM1					-0.208
					(-0.57)
ALC1					5.292***
					(6.51)
Age	0.033***	0.033***	0.033***	0.033***	0.033***
	(11.91)	(11.85)	(11.83)	(11.79)	(11.90)
intercept	-0.705***	-0.712***	-0.752***	-0.749***	-0.710***
	(-4.10)	(-4.15)	(-4.38)	(-4.37)	(-4.14)
year fixed effects	*YES*	*YES*	*YES*	*YES*	*YES*
Observations	*144,765*	*144,765*	*144,765*	*144,765*	*144,765*
Adjusted R2	*0.012*	*0.012*	*0.017*	*0.018*	*0.016*

note: *** p<0.01, ** p<0.05, * p<0.1

Table 6: Size of directors' personal networks in sin firms

Table shows the estimate of the size of directors' personal networks (various sin firm definitions and categories, see Section 3). Sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity. Sin involvement dummies are defined in Section 3. AOCN is the size of a director's personal network, which is the number of distinct other directors the director sits with on the boards of all firms where they are a director. *Age* is a director's age. All financial variables and returns are adjusted for CPI inflation. All continuous variables except FFSIZE are Winsorized at 1% (two-sided). Estimation method is least squares regression with year fixed effects (not shown; baseline year automatically selected by Stata software) and standard errors clustered at the firm-executive combination level.

This apparent contradiction suggests to me that the lower connectedness of sin firm executives may not be the choice of the sin firms. To support that assertion, I look at the relationship of G-index and board size in sin firms. The G-index (Gompers et al., 2003) is an indicator counting certain governance features which, if present, limit the ability of shareholders to exercise their rights, and as such is a measure of the balance of power between shareholders and managers. It is considered a proxy for corporate governance quality (also see e.g. Maug et al., 2014). Normally, lower G-index (higher shareholder power relative to managers) is associated with smaller boards of directors; in my sample, the estimated effect is approximately 0.13 directors for each point of G-index (t = 8.95); G-index ranges 0-24 in theory and 1-19 in the sample, sample mean is 9.2. Yermack (1996) finds that smaller boards are generally associated with higher valuations and better CEO incentives, suggesting that large boards are not in shareholders' interests (furthermore, Bebchuk and Fried, 2003, and Core et al., 1999, both take the position that large boards are weak vis-à-vis managers because of the increased difficulty of achieving consensus and presenting a unified front in negotiations).

However, in sin firms the relationship between G-index and board size is inverted. Lower G-index (better governance) is associated with larger boards, in *SIN1* the specific effect is 0.45 directors fewer per one point of G-index (t = -3.97), which combines with the full-sample effect (here estimated at 0.14 directors more per one point in G-index, t = 9.39) for a total effect of -0.30 directors per one point of G-index (Table 7). Sin firms are generally firms with above-average G-index; mean for *SIN1* is 7.8; the regression estimate of the idiosyncratic difference for *SIN1* is -1.8 points, t = -2.81, or 20% of the sample mean of 9.0 points (although G-index is not a natural scalar measure and thus this cannot be interpreted as '20% better governance'). According to Hong & Kacperczyk (2009), sin firms also tend to have conservative, quality accounting to appease regulators, a feature that is more in the interest of shareholders than of managers, and is generally counted among good governance practices. Both of these features suggest to me that sin shareholders should be strong enough to force smaller boards if they wished to; but, according to my results they actually seem to prefer larger boards, despite the mentioned disadvantages. This implies that having large boards (and thus, perhaps not incidentally, also access to more connections through directors, especially since sin directors are also individually well-connected) has some idiosyncratic value to sin firms that is worth the potentially considerable trade-off in the efficiency of shareholder representation. The same can be said about having directors with many directorships, as Core et al. (1999) also find that too

many concurrent directorships reduce the ability of the director to focus on any one, and thus boards where members have many seats (‘busy’ boards) are weaker. Nonetheless, sin firms seem to prefer large boards of well-connected directors.

Table 7: Corporate Governance and Board Size

	BOARD_SIZE	***BOARD_SIZE***	***BOARD_SIZE***	***BOARD_SIZE***
	coef/t	**coef/t**	**coef/t**	**coef/t**
SIN1	3.924***			
	(3.81)			
Gindex_SIN1	-0.446***			
	(-3.97)			
SIN2		2.179**		
		(2.25)		
Gindex_SIN2		-0.268***		
		(-2.68)		
SIN3			1.542*	
			(1.89)	
Gindex_SIN3			-0.163*	
			(-1.95)	
TOB1				5.197***
				(3.01)
GAM1				5.308**
				(2.26)
ALC1				0.030
				(0.03)
Gindex_TOB1				-0.611***
				(-3.74)
Gindex_GAM1				-0.618***
				(-2.72)
Gindex_ALC1				0.278**
				(2.16)
G-index	0.142***	0.140***	0.140***	0.142***
	(9.39)	(9.26)	(9.22)	(9.40)
CAP_{t-1}	0.322***	0.319***	0.317***	0.322***
	(7.42)	(7.27)	(7.22)	(7.52)
$SALE_{t-1}$	0.449***	0.457***	0.457***	0.445***
	(8.79)	(8.88)	(8.88)	(8.76)
SD_RET_{t-1}	-4.444***	-4.455***	-4.481***	-4.418***
	(-8.71)	(-8.73)	(-8.78)	(-8.67)
MB_{t-1}	-0.199***	-0.196***	-0.195***	-0.201***
	(-6.20)	(-6.04)	(-6.02)	(-6.26)
FFSIZE	-0.254***	-0.261***	-0.254***	-0.256***
	(-4.84)	(-4.97)	(-4.89)	(-4.84)
MSHARE	0.109	0.102	0.102	0.114

	(1.17)	(1.09)	(1.09)	(1.21)
intercept	4.290***	4.297***	4.272***	4.308***
	(10.29)	(10.28)	(10.23)	(10.33)
year fixed effects	*YES*	*YES*	*YES*	*YES*
Observations	*17,432*	*17,432*	*17,432*	*17,432*
Adjusted R2	*0.370*	*0.369*	*0.368*	*0.372*

note: *** p<0.01, ** p<0.05, * p<0.1

Table 7: Governance and board size in sin firms

Table shows the estimate of the size of firms' boards of directors (various sin firm definitions and categories, see Section 3) and how it relates to governance quality. Sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity. Sin involvement dummies are defined in Section 3. BOARD_SIZE is the size of a firm's board of directors, measured in-sample as number of board members recorded for the year. G-index is the Gompers-Ishii-Metrick corporate governance quality index. *Gindex_TOB1* (*_ALC1, _GAM1*) CAP is market capitalization. SALE is the natural logarithm of total sales. SD_RET is the standard deviation of firm monthly stock returns for the fiscal year. MB is the market-to-book ratio. FFSIZE is the natural logarithm of the number of firms in the industry for the fiscal year. G-index is the Gompers-Ishii-Metrick (2003) corporate governance quality index. MSHARE is the natural logarithm plus one of relative market share. All financial variables and returns are adjusted for CPI inflation. All continuous variables except FFSIZE are Winsorized at 1% (two-sided). Estimation method is least squares regression with year fixed effects (not shown; baseline year automatically selected by Stata software) and standard errors clustered at the firm-executive combination level.

Finally, I look at whether the lower connectedness and directorial activity of executives in sin firms explains the premium. I estimate ODCN in an auxiliary regression where sin dummies are omitted; I then subtract the actual ODCN from the fitted value from this regression, and use the resulting 'gap' variable as an interacting control in the compensation regression. I do the same with number of directorships; for both variables I include observations with zero ODCN/zero directorships. On the full sample, being worse connected and having fewer directorships both mean lower pay (t = -8.72 for ODCN gap, t = -7.77 for directorships gap). In sin firms, the interaction variables are insignificant except in tobacco in both cases. In tobacco, a larger 'gap' in directorships/connectedness is associated with higher pay (t = 1.76 for ODCN gap, t = 1.97 for directorships gap), and this explains a part of the premium (the premium estimate is \$601,404, t = 2.63 after the ODCN interaction; \$527,751, t = 2.31 after the directorships interaction; this is 64% and 56%, respectively, of the 'unconditional' premium estimate of \$938,018, t = 4.52)

These results suggest that even though large networks of connections are a trait that is more valuable in sin firms than elsewhere, sin firm executives do not possess such networks; in fact, their connection networks are smaller than those of their peers in otherwise comparable companies. This makes it unlikely that personal connectedness, which seems to be a trait specifically valued in sin firm *directors*, is the source of the sin premium for *executives*. If anything, my results suggest that a part of the premium may in fact be compensation for this

'handicap' in directorial activities at least in some sin firms. My results also suggest that the low directorial activity of sin executives is not voluntary (e.g. to be able to better focus on the primary job as executive), as directorial activities seem to be valuable to sin firms, making it likely that handicapping executives thus is not in the firms' interest. Instead, I believe the otherwise puzzling low directorial activity of sin executives may be caused by the hypothesized sin stigma. Sin executives may be 'shunned' as potential outside directors in the same way that sin firm stock is 'shunned' by norm-constrained institutional investors (the latter is shown by Hong and Kacperczyk, 2009).

5.6. Alternative Explanations

In this section I address some potential alternative explanations for the premium observed in sin firms, as well as concerns arising from literature. First, a compensation premium could conceivably be compensation for increased risk. My compensation regression controls for basic firm risk (standard deviation of returns). Furthermore, the tobacco and alcohol industries have the 2nd and 3rd lowest average SD of returns of the 46 industries in the sample. Gambling has higher risk, ranking 5th highest and well above the mean, but the estimated premium in gambling is the lowest, suggesting that stock market risk is not a likely source of the premium even if I were to assume my regression controls did not capture risk well, or did so incompletely.

There are, however, other kinds of risk besides firm market risk, which my regression design may not control for. In particular, executives are directly concerned mainly about their compensation, which is why pay is often tied to firm performance. Higher pay performance sensitivity generally makes future income riskier, decreasing its certainty-equivalent value. Higher average compensation could then simply be paid to balance the higher riskiness of the income stream. To evaluate this possibility, I use the approach of Jensen and Murphy (1990) to estimate pay performance sensitivity. This involves regressing the change in total compensation ($dTDC1_t$) on the current and past change in shareholder wealth ($dWEALTH_t$, $dWEALTH_{t-1}$) measured by the inflation-adjusted stock return over the fiscal year multiplied by company value in the beginning of the fiscal year. The sum of the slope coefficients on these two variables is then the measure of pay performance sensitivity. I find that compensation in sin firms is less sensitive to performance: for *SIN1*, the combined slope of the main effects at *t, t-1* is 0.146; the combined slope of the interaction coefficients is -0.055, for a net slope of 0.091 in *SIN1* (62%

of the main effect slope). The F-statistic of this regression is 122.77. The results are qualitatively similar in *SIN2*, *SIN3*, and for the decomposition into *TOB1*, *GAM1*, and *ALC1* (Table 8).[5]

Table 8: Pay Performance Sensitivity

	D_TDC1	***D_TDC1***	***D_TDC1***	***D_TDC1***	***D_SALBON***	***D_ODC***
	coef/t	**coef/t**	**coef/t**	**coef/t**	**coef/t**	**coef/t**
SIN1	-50.247**				8.378**	-49.107**
	(-2.10)				(2.35)	(-2.08)
DW_SIN1	-0.100***				-0.010***	-0.089***
	(-3.17)				(-2.80)	(-2.98)
DWL_SIN1	0.044				-0.002	0.053*
	(1.35)				(-0.42)	(1.72)
SIN2		-34.403*				
		(-1.74)				
DW_SIN2		-0.078**				
		(-2.55)				
DWL_SIN2		0.024				
		(0.75)				
SIN3			-24.684			
			(-1.40)			
DW_SIN3			-0.059**			
			(-2.26)			
DWL_SIN3			0.019			
			(0.70)			
TOB1				53.171		
				(0.87)		
GAM1				-92.398***		
				(-3.37)		
ALC1				-30.646		
				(-0.69)		
DW_TOB1				-0.188***		
				(-4.16)		
DW_GAM1				-0.278*		
				(-1.88)		
DW_ALC1				-0.029		
				(-0.80)		
DWL_TOB1				0.086*		
				(1.94)		
DWL_GAM1				-0.179**		
				(-2.25)		

[5] As a robustness check I (i) use sum of salary and bonus instead of total compensation, (ii) include year fixed effects, and (iii) include the controls I use in the basic compensation regression (Table 3), along with the fixed effects. The results are qualitatively unaffected. Sin firm compensation is, however, more sensitive to change in shareholder wealth due to last-year excess return, while being somewhat less sensitive to shareholder wealth change due to same-year excess return, when excess return is used in place of total return.

DWL_ALC1				0.036		
				(0.72)		
DWEALTH$_t$	0.083***	0.082***	0.082***	0.083***	0.013***	0.071***
	(12.75)	(12.62)	(12.47)	(12.75)	(17.90)	(11.33)
DWEALTH$_{t-1}$	0.063***	0.064***	0.064***	0.063***	0.002***	0.061***
	(9.71)	(9.78)	(9.70)	(9.71)	(2.86)	(9.57)
intercept	25.398***	25.370***	25.371***	25.398***	11.787***	21.085***
	(13.57)	(13.53)	(13.51)	(13.57)	(42.04)	(11.84)
year fixed effects	*NO*	*NO*	*NO*	*NO*	*NO*	*NO*
Observations	*115,199*	*115,199*	*115,199*	*115,199*	*135,928*	*115,199*
Adjusted R2	*0.010*	*0.010*	*0.010*	*0.011*	*0.007*	*0.009*

note: *** p<0.01, ** p<0.05, * p<0.1

Table 8: Pay performance sensitivity in sin firms

Table shows the estimate of the pay performance sensitivity in sin firms (various sin firm definitions and categories, see Section 3). The model is adapted from Jensen and Murphy (1990). TDC1 is ExecuComp (EC) item *total direct compensation*. SALBON is the sum of EC items *salary* and *bonus*. The prefix D_ denotes first difference, i.e. D_$X = X_t$-X_{t-1}. DWEALTH is the Jensen-Murphy (1990) measure of the change in shareholder wealth. The prefix DW_ denotes interaction with the variable $DWEALTH_t$, i.e. DW_X = X*$DWEALTH_t$. The prefix DWL_ denotes interaction with $DWEALTH_{t-1}$. Following Jensen and Murphy (1990), the total effect of pay performance sensitivity is taken to be the sum of the coefficients on $DWEALTH_t$ and $DWEALTH_{t-1}$ (or on a variable's interactions with them). Sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity and/or negative TDC1 compensation. All continuous variables are Winsorized at 1% (two-sided). Estimation method is least squares regression (without with year fixed effects) with standard errors clustered at the firm-executive combination level.

Risk of dismissal could also be considered compensation risk, as dismissal obviously means no more compensation received from that firm. While it is generally difficult for outsiders to gauge reasons for dismissal, and my data does not offer much insight into firm politics, dismissal can also be related to performance: Badly performing executives may get fired (e.g. Coughlan and Schmidt, 1985; Jenter and Lewellen, 2010) and well-performing executives may get promoted or offered a higher-value job elsewhere (Fee and Hadlock, 2003). Dismissal performance sensitivity thus provides a quantifiable, if likely incomplete, measure of dismissal risk. I use the Jensen-Murphy model to estimate dismissal performance sensitivity, with the modification that the model is now probit, the estimation is split into two regressions for "good performance" ($dWEALTH_t + dWEALTH_{t-1} > 0$) and "bad performance" ($dWEALTH_t + dWEALTH_{t-1} < 0$), and executive-firm combinations (jobs) where the executive has "retired" (left aged 62 or more and did not take up another executive job; I use this proxy as data on cause of departure is generally not available) are excluded. I use a binary indicator equal to one for all years when an executive who will eventually leave (as opposed to executives who stay with the firm until the end of its records in the sample or until they retire) is with the firm. I find that sin firm executives are less likely to eventually leave if performance is bad, and more likely to eventually leave if performance is good, than other executives. If I use an indicator equal to one

only in the year of departure, the results are similar but not statistically significant. These results suggest that sin firms enjoy no less, possibly more job security than executives of other firms. It is also useful to recall that sin firms have better than average governance; good governance should lead to higher pay and dismissal performance sensitivity, at least in case of bad performance. However, the opposite is the case in sin firms.

Finally, I evaluate the stability of executives' income. I compute the coefficient of variation (CV; ratio of standard deviation to mean) of *TDC1* compensation for each firm-executive combination. The results are not dissimilar to stock market risk (which is not surprising considering that performance incentive schemes typically make up a good portion of executive pay): while gambling executives have the highest CV of *TDC1* of any industry in the sample, alcohol executives have below-average and tobacco executives the lowest CV of *TDC1*. I also compare the share of decreases in year-to-year changes of *TDC1* compensation across industries. Again, this is high in gambling and low in tobacco and alcohol (ranks 1st, 32nd, 40th largest, respectively, out of 46). Recall that gambling has the lowest premium out of the three sin industries. Finding the highest pay risk there makes the hypothesis that the premium is compensation for pay risk even more unlikely. On the other hand, it is possible that the premium in gambling is the lowest *because* of high risk: risk is one of the controls in the main regression (market risk only, but pay risk, as discussed, seems well-correlated with market risk, potentially making market risk a proxy for both, at least partially), and its coefficient is positive (i.e, the higher the risk, the higher the compensation) making it possible that gambling's significantly higher risk 'absorbs' enough compensation to decrease the 'otherwise unexplained' industry-specific part of compensation which is the premium, compared to the other two sin industries.

Both the CV of *TDC1* and the job-specific likelihood of *TDC1* decrease (i.e., the proportion of decreases in year-to-year *TDC1* changes for each executive-firm combination) are significant positive predictors of compensation (Table 9); however, their interactions with the sin dummies are insignificant (suggesting their unit impact on compensation is no different in sin than elsewhere), and they do not affect the sin premium estimates in any material way, neither when interactions are included nor when used only as simple controls. The only exception is a further decrease in the premium estimate in *GAM1* (by about 30%, from \$323,174, t = 3.76 to \$228,606, t = 2.68, when both pay risk variables are included simultaneously as simple controls only), lending some credence to the hypothesis that the premium being lower in gambling may be related to the industry's high risk. The concurrent research of Novak and Bilinsky (2014) has

similar results on pay performance sensitivity, pay dismissal sensitivity, and compensation variability and downside risk.

Table 9: Overview of Robustness Checks

	TDC1	***TDC1***	***TDC1***
	coef/t	**coef/t**	**coef/t**
SIN1	551.501***	687.627***	533.271***
	(7.53)	(7.09)	(7.17)
MA_SCORE	-158.487***		
	(-2.66)		
Contribution	-20.051		
	(-1.15)		
CIS		-3,339.220***	
		(-5.37)	
TOP5		413.685***	
		(2.67)	
Decrease_avg			217.458***
			(8.80)
CV_TDC1			387.610***
			(13.38)
controls	*Table 3*	*Table 3*	*Table 3*
year fixed effects	*YES*	*YES*	*YES*
Observations	*111,928*	*72,334*	*119,016*
Adjusted R2	*0.391*	*0.420*	*0.395*

note: *** p<0.01, ** p<0.05, * p<0.1

Table 9: Overview of robustness checks

Table shows an overview of variables added into the main regression (refer to Table 3) as robustness check. Only the coefficients on the variable of interest and the effect on the *SIN1* coefficient are shown for brevity. Sin firm definitions and categories, see Section 3. Sample includes all firm-executive-year combinations tracked by ExecuComp 1992-2012 excluding financial services (Fama-French industries 45-48, SIC codes 6000-6999) and observations with negative book equity and/or negative TDC1 compensation. Sin involvement dummies are defined in Section 3. TDC1 is ExecuComp (EC) item total direct compensation. MA_SCORE is the *MA Score* management team ability measure of Demerjian et al. (2012). Contribution is an estimate of an executive's contribution to the year's excess return. CIS is the concentration of institutional shareholdings, measured as the Herfindahl-Hirschmann Index thereof. TOP5 is the combined ownership share of the 5 largest institutional shareholders. Decrease_avg is the mean over executive's tenure at firm of a binary indicator that is equal to 1 if TDC1 has decreased year-to-year, 0 otherwise. CV_TDC1 is the coefficient of variation (st. dev. over mean) of TDC1 over executive's tenure at firm. All financial variables and returns are adjusted for CPI inflation. All continuous variables except FFSIZE are Winsorized at 1% (two-sided). Estimation method is least squares regression with year fixed effects (not shown; baseline year automatically selected by Stata software) and standard errors clustered at the firm-executive combination level. All controls used in Table 3 (except the sin dummies other than SIN1) are used in the regressions in this table as well. Refer to Section 3 or notes to Table 3 or Table 1 for descriptions of these controls.

Next, I investigate the possibility that the premium is due to higher ability of managers. I use a firm-specific measure of the 'ability' of the management team in a given year. Called the 'MA Score', this measure was developed by Demerjian et al. (2012) and is based on the portion of

'unexplained efficiency' of firm operations attributable to the management. When used as a simple control in the compensation regression, *MA Score* is significant negative and slightly (by less than 10%) reduces the premium estimate in tobacco and alcohol (Table 9). As an interacting control, *MA Score* is significant for some sin categories, but does not affect the premium estimate any further. Novak and Bilinsky (2014) find similar results with the *MA Score*. As an individually specific alternative performance measure I use *Contribution*, a variable of my own construction that is based on the estimate of an executive's contribution to 'unexplained' excess return (see Section 3 for details). However, *Contribution* is not statistically significant as either a simple or an interacting compensation control. A further, indirect argument against higher ability of sin firm executives is the low pay performance (PP) sensitivity in sin firms: The expectations of capable individuals regarding the probability of an upside versus a downside performance event may be higher than normal (they may 'believe themselves better than the par'). This 'upside optimism' regarding their performance could make highly capable executives seek high-PP sensitivity compensation arrangements, looking to reap the more generous upside benefits. Since I find sin firms to have PP sensitivity below the norm, it is unlikely they attract capable executives through the 'challenge' of PP sensitivity. Additionally, neither *MA Score* nor *Contribution* are significant predictors of sin firm executives' propensity of switching jobs (either joining or leaving the sin industries).

Finally, I address the issue of institutional ownership (IO). Hartzell and Starks (2003) find institutional ownership significant in predicting both the level and the performance sensitivity of compensation, and the central thesis of Hong and Kacperczyk (2009) identifies lower institutional ownership as the immediate cause of the sin premium in the stock market. Following Hartzell and Starks (2003), I use the combined ownership share of the 5 largest institutional shareholders (*TOP5*) and the concentration (Herfindahl-Hirschmann Index) of institutional shareholdings (*CIS*) as the primary measures of institutional ownership. In both measures, all sin industries rank low (alcohol: 42nd largest in *TOP5*, 39th largest in *CIS*; tobacco: *TOP5* 41st, *CIS* 42nd; gambling: *TOP5* 37th, *CIS* 40th, all out of 46). It is worth pointing out that low IO is generally associated with worse corporate governance (e.g. Denis et al., 1997), but that sin firm corporate governance seems to be above average (G-index is estimated to be idiosyncratically lower by 1.8 points, or 20% of sample mean, in *SIN1*). On the other hand, low IO is related to lower PP sensitivity (e.g. Bebchuk et al., 2002 and Bebchuk and Fried, 2003), and thus may help explain the lower PP sensitivity I observe in sin firms (however, the good

general governance quality in sin firms would imply higher PP sensitivity, and my tests cannot determine which, if any, of these opposing effects dominates).

CIS is a significant negative predictor of compensation and *TOP5* significant positive when they are included together as simple controls in the main performance regression (*TOP5* is significant negative when *CIS* is not included). Their addition increases the premium estimate in *ALC1* to almost the level of *TOB1* (here \$965,763, t = 4.17), from \$742,960 t = 5.95 to \$941,561, t = 5.57, or by approximately 27% (Table 9). Otherwise the premium estimates remain largely unchanged, and both variables are generally insignificant as interacting controls.[6] Nonetheless, given the explanatory power of IO over compensation documented by Hartzell and Starks (2003) and echoed by my results, as well as the heterogeneity of IO in sin firms described by Hong and Kacperczyk (2009), IO variables would merit inclusion into the main compensation regression as default controls. I do not do so and instead present the results here separately for practical reasons: my IO data only covers about 60% of the sample I otherwise use. The sin industries are quite small, and thus have relatively few observations, as it is, and for some of my tests (particularly, but not exclusively, the executive migration patterns) such a reduction would have unfortunate effects on sample size.

[6] The results are similar when *TOP5* is replaced by the simple share of institutional ownership (*IOS*) or the combined share held by institutional blockholders above 1% share each (*BH1*) or 5% share each (*BH5*).

6. Conclusion

This thesis examines executive compensation in sin firms – firms in the alcohol, gambling, and tobacco industries. Previous research indicates that sin firms may face a 'stigma' as a result of their activities violating social norms, and that this stigma may impose substantial costs on them, thus serving as a natural mechanism for penalizing and restraining socially undesirable business activities. I look for evidence of this stigma acting to increase sin firm executive compensation (essentially as payment for sin executives bearing the stigma). I find a premium in sin firm executive compensation that amounts to approximately 30% of the mean total compensation of sin firm executives; I control for common determinants of executive compensation such as e.g. firm size and profitability. This premium is lower in firms that are less involved in sin activities (e.g., only have a business segment active in a sin industry), is present in all three component industries (alcohol, gambling, and tobacco), and is the largest in the tobacco industry. The latter is in accordance with predictions based on prior research, which identifies tobacco as potentially the most 'stigmatized' of the sin industries. The premium is also larger for CEOs than for other executives in absolute terms, although it makes up a smaller portion of their total compensation (roughly 20%), as CEO compensation is generally higher than the compensation of other executives.

The premium does not seem to 'follow' executives when they switch jobs to a different industry, suggesting that it is firm-specific, rather than due to individual characteristics. It also does not appear that the premium is payment for some skill or trait of sin executives that is only valuable to a sin firm (and thus would not transfer with the executive to a job in another industry). If that were the case, I would expect sin executives to be both 'retained' in their jobs by their employers and less inclined to leave of their own volition, because of their unique skills. However, sin firm executives have shorter tenure than other executives, and are somewhat younger on average. While sin firm executives seem less likely to be fired for poor performance, they are more likely to leave after good performance. Executive migration patterns also suggest that sin firm executives are unconditionally more likely to switch jobs to other industries, and more executives leave sin firms for another industry than join them from another industry. Overall, sin firm executive migration patterns correspond to expectations based on sin industry size and sin firm size and profitability. Interestingly, it appears that whatever stigma may be associated with sin firms does not disadvantage sin executives in terms of future job

opportunities in other industries, suggesting that any detrimental effects on executives end with the end of their association with sin firms.

On the other hand, I find evidence that sin firm executives are ‘shunned’ as outside directors in other firms: They are less likely to hold any outside directorships at all, and if they do hold them, they may hold fewer. This is made all the more significant by the general attitude of sin firms towards directorships: Sin firm directors in general have more directorships than others, and in sin firms good corporate governance is associated with larger boards, whereas in other firms it is associated with smaller boards. Based on prior research, I hypothesize sin firms value directorships in part because of the connections gained through directors sitting on boards of other firms. Indeed, the ‘network’ of connections of sin directors is larger than in directors of other firms. My results support the hypothesis that directorial connections are more valuable to sin firms than to other firms. It would thus appear to be in sin firms’ interest to have access to additional connections by having their executives serve as outside directors as often as possible. Sin firms are also generally large and profitable, which according to prior research should make their executives desirable as outside directors. The fact that sin executives instead exhibit significantly lower directorial activity than other executives suggests that they may be unwanted on outside boards of directors, which seems to indicate that sin firm executives indeed are stigmatized. Also, the apparent difficulty of sin executives in obtaining directorships bereaves them of the financial rewards of outside director seats, although the premium in their compensation as executives does not appear to correspond on an individual level to directorships forgone relative to model predictions.

The premium does not appear to be caused by firm risk or compensation risk. Sin firms are generally low-risk stocks, sin firm executive compensation has relatively low variability, pay performance sensitivity in sin firms is lower than the sample norm, and sin firm executives appear to face a lower risk of dismissal for poor performance. Executive ability also does not explain the premium. Institutional ownership is lower in sin firms and significant for executive compensation in general, but it does not affect the sin premium, either. In summary, the premium I find in sin firm executive compensation appears to be a property of the firms, rather than the executives, and I cannot find an explanation for it among the known determinants of executive compensation, whether ones specific to the firm or to the individual; the premium appears unassociated with any quantifiable performance or skill. At the same time, it would not be economically rational for sin firms to pay a premium ‘for nothing’, suggesting that there is

an intangible effect at work in sin firm executive compensation. There is evidence that sin firms bear a ‘stigma’ of public disapproval associated with concrete costs in the stock market and elsewhere. I find indications that this stigma acts upon executives as well, through the market for outside directorships (although I cannot directly link sin executives’ reduced directorial activity to the premium in a causal relationship). Based on the results outlined above, it seems likely that this ‘intangible effect’ generating the premium in sin firm executive compensation is the stigma that sin firms bear in the eyes of the society. If so, the premium represents a ‘pay-off’ to the executives for having to bear this stigma by association.

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