

**ERASMUS UNIVERSITY ROTTERDAM**  
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Master Thesis: Financial Economics

Does doing good make you good? The effect CSR engagement has on the  
Institutional Ownership of Sin Stocks.

Author: Sebastian Olichwier

Student Number: 469973

Supervisor: Laurens Swinkels

Second Assessor:

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## **ABSTRACT**

In this thesis, I investigate the effect CSR engagement has on the Institutional Ownership of firms, located in the United States, that operate in the Alcohol, Biotech, Gambling, Defense, Oil, and Tobacco Industries, otherwise known as Sin Stocks. These firms are known to have a lower percentage of shares owned by Institutional Investors due to the Social Norms Effect. Consequently, I focus on determining whether engagement in CSR and taking part in CSR related advertising help offset Social Norms for Sin Stocks by running panel data regressions during the years 2000 to 2016. I first find that Sin Stocks have significantly less percentage of shares owned by Institutional Investors than their Comparables (firms that operate in the Food, Soda, Recreation, and Electrical Industries). Secondly, I find that CSR engagement has a significant negative effect on the Institutional Ownership of all Sin Stocks. Lastly, I find that CSR related advertising also has a significant negative effect on the Institutional Ownership of Sin Stocks.

Keywords: Institutional Ownership, Sin Stocks, Corporate Social Responsibility, Sin Industries, Comparables, CSR Advertising, Social Norms, Social Responsible Investing.

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## Section 1: Introduction

More and more firms are incorporating Corporate Social Responsibility (CSR) initiatives into their business practices. For example, GE spends approximately 15 % of its total profits on CSR initiatives, which include 2 billion USD on new environmental technologies, 800 million USD on improving management systems that reduce the environmental footprint, 300 million USD on social programs, and 60 million USD on “ecomagination-related marketing.” (Forbes, 2007). Firms also devote a significant portion of their annual reports or issue special CSR reports to highlight their commitment to social goals and the actions undertaken to reach them (Barnea & Rubin 2010). Furthermore, there are many websites and associations focused on addressing CSR, there are consultants that focus on providing solutions to CSR program development, and there are specific MBA programs that allow students to specialize in CSR. This shows that CSR engagement is not only a big corporate trend, but a significant social trend (Barnea & Rubin 2010).

The impact CSR has on various aspects of business is a popular topic that is shared among academics. Although this has been a widely studied area there is no clear consensus on the definition of CSR and no clear consensus as to why firms engage in CSR. Friedman (1970) defines CSR as follows: “ CSR is to conduct the business in accordance with shareholders’ desires, which generally will be to make as much money as possible while confirming to the basic rules of society, both those embodied in law and those embodied in ethical customs.” Bernea & Rubin (2010), Jo & Harjoto (2011), and Jo & Harjoto (2012) acknowledge that there are various different definitions of CSR but they state that in CSR in general refers to “serving people, communities, the environment in ways that go above and beyond what is legally required of a firm.” In general, CSR is going above and beyond what is expected with regards to the environment, community, and employees.

A common question that academic literature related to CSR addresses is: why do companies engage in CSR? Majority of the literature focuses on determining whether socially responsible firms reap benefits of better financial performance. Although there is mixed evidence of the results, partly due to different financial performance measurements (ROE, ROA, stock performance, and Tobin’s Q) being used, it is fair to say that majority of the studies show there is a positive relationship between CSR and financial performance. One study (Goss & Roberts, 2011) shows that firms with CSR concerns pay between 7 and 18 basis points higher on loans than firms

with no concerns. Another set of studies focus on the impact CSR engagement has on executive compensation. Cai, Jo, & Pan (2011) theorize that executives undertake CSR to reap the benefits of higher compensation but find that there is an inverse relationship between CSR engagement and total and cash compensation. Lastly, there are some studies that focus on addressing the effect social responsibility has on institutional ownership with the results showing a positive association between the variables (Waddock & Graves, 1994; Mahoney and Roberts, 2007). In general, CSR engagement results in better financial performance, cheaper financing options, and higher institutional ownership.

Similarly, to how corporations can focus on engaging in CSR, investing institutions can focus on Social Responsible Investing (SRI). Social Responsible Investing has been gaining popularity over the past couple of decades. It is defined as “the practice of directing investment funds in ways that combine investors’ financial objectives with their commitment to social concerns, such as social justice, economic development, peace, or a healthy environment (Heigh & Hazelton, 2004). According to the “Report on US Sustainable, Responsible, and Impact Investing Trends” the amount of socially responsible assets held in 2016, which was approximately 8.7 trillion USD), grew by 38% annually to approximately 12 trillion dollars. This growth is predominantly driven by asset managers who consider Environmental, Social, and Governance (ESG) criteria before making investments, with climate change, tobacco, and conflict risk being the top three issues under consideration (US SIF Foundation, 2018). Other examples of ESG criteria used by investors when deciding whether to invest in a particular company include Board Diversity, Anti Corruption Policies, Human Rights, Workplace Safety, Pollution, Clean Technology, and Product Exclusion such as Tobacco. Product exclusion could mean that companies that are involved in the manufacturing of Alcohol, Gambling, Weapons, Oil, Biotech, and Tobacco may have lower institutional ownership than other companies due to this one ESG factor. Hong and Kacperczyk (2009) do find that stocks involved in the Alcohol, Gambling, and Tobacco Industries (triumvirate sin industries) have a lower percentage of their shares owned by institutional investors. They also find that Sin Stocks are less held by institutions that are more constrained by Social Norm pressures.<sup>1</sup> These Social Norms pressures result in the Social Norms

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<sup>1</sup> There are many definitions of the Social Norms concept. I follow Hong & Kacperczyk (2009) who follow Akerlof (1980) to define Social Norms as “an act whose utility to the agent performing it depends in some way on the beliefs or actions of other members of the community.”

Effect, which means that institutional investors omit investing in particular stocks due to the negative stigma the community associates firms that operate in the sinful and controversial industries.

The question this paper examines is: given that there are many other ESG factors institutional investors may consider when making investment decisions, can companies that operate in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries engage in other aspects of Corporate Social Responsibility (CSR) to draw in more investment from institutional investors? In other words, does engaging in Corporate Social Responsibility offset Social Norms? This article examines the effect CSR engagement of firms in the sin and controversial industries has on Institutional Ownership (IO).

This is a compelling research topic as it can provide insight as to how companies can structure their business strategies to make their stocks more appealing to institutional investors. Institutions are estimated to account for majority of all trading activities, so knowing how institutions react to CSR engagement could be a factor a business considers when formulating business strategies. This is important because Institutional Ownership influences stock prices (Gompers and Metrick 2000) and stock return volatility (Bushee and Noe 2000; Harjoto et al 2017). Furthermore, if CSR engagement does appeal to more institutional investors, then the practitioners working in the Sin Industries might embrace CSR. Hence, it is important to know the effect CSR has on Institutional Ownership because if it is positive then more Sin firms would engage in CSR, which ultimately would result in a greater social impact.

The goal of this research is to investigate whether the engagement of CSR attracts more institutional investors and thereby increasing institutional ownership for firms operating in the sinful industries. Empirically, I research whether engagement in CSR offsets the Social Norms effect that bounds firms operating in sinful and controversial industries from having high Institutional Ownership. In order to investigate the question, I gather Institutional Data from the Thomson Reuters Spectrum Database, CSR data from KLD Research and Analytics Database, and financial data from Compustat and CRSP. The sample includes 3722 firm year observations of which 2566 are for firms operating in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco industries and 1156 are for firms operating in the Soda, Food, Recreation, and Electrical industries for the years 2000 to 2016. I perform panel data regressions with time and industry fixed effects

with Institutional Ownership being the dependent variable, CSR engagement the explanatory variable(s), and firm financial characteristics being the control variables. In the end, I find that CSR engagement has a negative effect on Institutional Ownership, even after splitting the Sin Stock data sample with firm years above or below certain firm financial characteristics such as cash. I also find that there is no significant difference in Institutional Ownership means between firms that operate in the triumvirate sin industries and firms that operate in the controversial industries.

The results provide more in-depth insight about the impact CSR engagement has on the Institutional Ownership of Sin Stocks. Business executives may find my findings beneficial when deciding on the direction they want to take the company. Academic researchers may also consider my findings useful as the Social Norms Effect is proved contributing to literature that study the reasons why firms in Sin and Controversial Industries engage in CSR.

My research is important for several reasons. First, it further extends to the large sample of CSR studies by focusing on one market: United States. This extension would allow future researchers to compare findings from other countries and other industries with results found in the U.S. Second, this research provides insight into Social Responsible Investing by evaluating the extent of interest that is generated among institutional investors by Sin Stock CSR engagement. Furthermore, this paper bridges the gap between already existing academic literature. There are studies that examine the effect CSR engagement has on Institutional Holdings (Waddock and Graves 1994; Mahoney & Roberts 2007) and the impact CSR has on Sin Stock firm value (Cai et al. 2011).<sup>2</sup> However, I am unaware of any studies that strictly focus on the relationship between Corporate Social Performance (CSP) and the impact it has on the Institutional Ownership of Sin Stocks. Hence, this paper is the first of its kind that sheds light on this topic and contributes to the limited amount of literature that focuses on finding the reasons why Sin Stocks engage in CSR. There is some research on this topic (Frynas 2005; Palazzo and Richter 2005; Yoon et al. 2006; Byrne 2010; Cai et al. 2011; Kotchen and Moon 2012; Oh et al. 2014), but they are at an early stage and there is no consensus to the reasons firms in controversial and sinful industries engage

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<sup>2</sup> There are countless academic studies that examine the relationship between CSR engagement and firm value. However, Cai Jo, & Pan (2011) focus strictly on the relation between CSR engagement and firm value for companies operating in the Alcohol, Biotech, Cement, Defense, Gambling, Oil, and Tobacco Industries.

in Corporate Social Responsibility and the implications they carry on firm value, stock performance, governance issues, financial credibility, and Institutional Ownership (IO).

The remainder of the paper is organized as follows. In Section 2 I discuss relevant academic literature in the CSR, SRI, and Sin Stock fields and use the past findings in formulating the hypothesis. In Section 3 I define what a Sin Stock is using past definitions and conducting statistical analyses (ANOVA). Section 4 outlines from where the data was retrieved and how the different datasets from the databases were merged. Section 5 outlines how the dependent, explanatory, and control variables were calculated and how they fit in the models used to examine the question at hand. Section 6 presents the results from the regression analyses and Section 7 provides a discussion of the results. Finally, this paper ends with a conclusion in Section 8.

## SECTION 2: LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The exclusion of certain stocks based on personal and societal values has led to many studies about problems associated with negative screening, about how sin stocks behave to disassociate themselves from the negative stigma that surrounds them (usually through CSR engagement), and the relationship between CSR, firm value, and Institutional Ownership.

Exclusion policies that define industries that institutions will and will not invest in is a simple policy that usually requires the investors to omit certain stocks. Such a “black and white” policy does not follow the two purposes of SRI which are: (1) “to allow investors to reflect their personal value in their choice,” and (2) “encourage companies to improve their ethical, social, & environmental performance (Colle and York 2009). Since, institutional investors have a fiduciary duty to invest money in ways that will generate financial returns for their clients (Del Guercio, 1996), it may be the clients that are driving institutions to engage in more socially responsible investing; or it may be an institutions strategy to taking-on more clients. However, given the United Nations Sustainable Development Goals, which may require five to seven trillion dollars to reach, institutional investors, especially pension funds may have a fiduciary duty to not only generate financial returns but to make sustainable investments on behalf of their clients (Bauer et al. 2019). Bauer, Ruof, & Smeets (2019), who run a field survey to determine whether people put their pension savings in sustainable enterprises, find that more than 65 percent of Dutch pensioners prefer to invest in a sustainable manner. However, when the participants were asked about companies that should be excluded from the investors portfolio to promote sustainability, less than

half of the participants agreed that alcohol and tobacco firms should be excluded. However, more than 70% of the participants agreed to exclude companies that manufacture weapons from investments. Majority of the participants (more than 80%) agreed that the pension fund should omit making investments in companies that are corrupt, exploit child labour, violate human rights, and use forced labour. To encourage companies to improve their CSR performance an Institution must have a stake in that company in order to push down that agenda and engage in talks with companies that do not adhere to the investors sustainability policies. There are studies that examine the relationship between Institutional Ownership and its effect on a firm's Corporate Social Responsibility ratings with results being similar through out; that there is a positive relationship between the variables. Dyck et al. (2019) show that Institutional Ownership is positively associated with a firms social and environmental commitments on an international level. Although, institutional investors fulfill the second purpose of SRI, Colle & York (2009) suggest three ways that SRI itself can be improved: (1) conduct studies that analyze the real impact of a company's products and services, (2) consider the company's relationship with its stakeholders, and (3) analyze the environment in which the business operates. By not investing in a company that markets and sells products that promote human vice, institutions are already engaging in the first part of SRI. Trink and Scholtens (2017) find that there is an opportunity cost associated with SRI screening. They state that strictly omitting stocks based on SRI screening reduces investment choices resulting in a negative alpha of .25%. Following Colle & York, if companies want institutions to invest in them, then the companies will focus on improving their relationships with their stakeholders and focus on becoming an industry leader in financial performance and CSR engagement.

From the economic perspective, previous studies find that firms that operate in the sinful industries pay higher dividends (Ahrens, 2004), outperform the market across all economics cycles including recessions (Hong & Kacperczyk, 2009; Salaber 2007) and publish higher quality information (Kim & Venkatachalan 2011). In doing so, the authors argue that while improving transparency, through higher quality reporting, they are also reducing information asymmetry, adverse selection, and cost of capital all of which may constitute to a strong positive relationship with their stakeholders. Cai, Jo, and Pan second that observation by determining that sinful companies use CSR as a vehicle to improve transparency, corporate strategies, and philanthropy instead of deceiving stakeholders and legitimizing their business. They also find a significant and

positive relationship between CSR and firm value for firms operating in the sinful industries. The higher quality reporting, financial outperformance, better transparency, and positive relationship between CSR engagement and Firm value could draw in more investment from institutional investors. However, Hong and Kacperczyk (2009) find that companies that operate in the sin industries (Alcohol, Tobacco, and Gambling) have lower Institutional Ownership than other firms operating in different industries. This suggests that Social Norms form economic behaviour more than financial incentives. In other words, there is a negative stigma that is associated with companies that operate in the sinful industries.

### Sec. 2.1: Does engaging in CSR offset the negative stigma that is associated with Sin Stocks?

Academic studies have shown that Investing Institutions react to a firm's CSR activities. Graves and Waddock (1994) and Mahoney and Roberts (2007) find that corporate responsibility increases the amount of equity held by institutional investors and find a positive relationship between a firm's CSR engagement and the number of Institutions holding the stock. If this is also true for firms operating in the controversial industries this would mean that CSR engagement offsets the negative stigma that circulates around the controversial firms. This means that there are three possibilities in how institutional investors react to a Sin Stock's CSR engagement. In the first case, there is an offsetting effect. In other words, CSR engagement does offset the negative stigma that is associated with Sin Stocks and as a result, draw in more institutional investment. In the second case, there is no effect on Institutional Holdings, meaning that there is a Social Norms Effect. Lastly, there may be a negative effect on Institutional Holdings deeming the Social Norms effect also true. However, if there is a negative effect, it could be due to investing institutions seeing it as a paradoxical business strategy given the nature of the firm. Institutional investors may also see it as a deviation from the firm's core industry, which may be deemed irresponsible as investment managers may see it as a squandering of a firm's resources. In summary, engagement in CSR can result in one of three different scenarios:

- 1) In the first scenario, engagement in CSR does result in higher Institutional Ownership
- 2) In the second scenario, engagement in CSR results in no significant change in Institutional Ownership
- 3) In the third scenario, engagement in CSR results in lower Institutional Ownership

To test the effect CSR engagement has on the Institutional Ownership of Sin Stocks, I run panel data regressions with time and industry fixed effects while controlling for various firm financial characteristics such as size, profitability, performance, liquidity, and debt. These first sets of tests strictly focus on whether a sin stock engaging in its first defense mechanism against its negative social stigma is an effective tactic in offsetting that negative stigma.<sup>3</sup> If it does or does not, it may be due to the second defense mechanism, advertising CSR engagement.

### Sec. 2.2: Does advertising CSR engagement offset the negative stigma that is associated with Sin Stocks or does it exacerbate it?

A theory put forth by Kotchen and Moon (2012), suggests that Sin Stocks engage in CSR to offset the negative stigma that surrounds them. For example, Altria has donated over a billion dollars in cash and food to various charities in the 90's (Waxler, 2004) while Anheuser Busch, being the worlds largest recycler of aluminum cans, recycles 97% of the waste it generates (Ahrens, 2004). MGM Resorts highlight that they donated 13.5 million dollars to cash to charities and that their workers contributed over 114 500 hours of community service (MGM Resorts, 2017). These examples are in line with Kotchen and Moon, who find companies that cause harm to society do focus on being good. Investors may question the intentions behind a sinful companies CSR announcement or engagement as it may be an effort by the firm to disassociate themselves from the negative stigma that is associated with them. However, Yoon, Gürhan-Canli, & Schwarz (2006) argue that CSR activities only improve a company's image if consumers believe that the CSR engagements are sincere with insincere motives backfiring on the company. When Philip Morris started to support a youth smoking prevention campaign, both critics and consumers criticized its attempt since they were sponsoring a program that was undercutting their profits. Another aspect that academics consider when analyzing the sincerity of a company's engagement in CSR is the method the company uses to advertise its CSR campaigns. Oh, Bae, & Kim (2016) find a positive relationship between engagement in CSR programs and advertising expenditure for companies that operate in sinful industries. It is possible, that institutional investors may view CSR engagement as an insincere business strategy if they do not like the way it has been advertised or if the CSR engagement itself is contradictory to the nature of the business.

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<sup>3</sup> Oh, Bae, and Kim (2016) suggest that sin stocks can engage in two defense mechanisms to help negate the negative stigma surrounding them: engage in CSR and advertise their CSR efforts.

Previous studies demonstrate that engagement in CSR activities results in reputation enhancement (Turban and Greening 1997), stronger levels of customer loyalty (Maignan et al. 1999), the freedom to charge higher prices for products (Bhattacharya and Sen 2004) and increased brand equity. For companies that operate in sinful and controversial industries, engaging in CSR provides them the opportunity to counter the negative stigma that is associated with them (Oh et al., 2016). The relationship between Institutional Ownership and Corporate Social Responsibility is complex enough as it is, however with sin stocks it gets even more complex as the sincerity of the CSR engagement is an additional factor that may affect investment choice. Other factors may include, the attitude of the investor toward the CSR engagement, whether they view it as value enhancing, whether the investor deems the CSR engagement as sincere or insincere, how the CSR engagement is marketed, and the nature of the institutional investor.

Naïve Business Theory suggests that consumers will perceive a firm's engagement in CSR as a noble act and not be suspicious of its intentions; thus, attributing a positive valuation of the company. Given that Sin stocks outperform the market and are recession proof but have less institutional ownership due to the nature of their business, advertising CSR may or may not have positive effects on Institutional Ownership. If the Naïve Business Theory is true, then no level of advertising should have a negative impact on Institutional Ownership. Schuler & Cording (2006) find that advertising CSR engagements can improve sin companies' images, which may result in higher institutional ownership as it could be helping in offsetting the negative stigma. Yoon et al. (2006) find that CSR activities improve a controversial company's image only if the consumers deem them sincere. If the consumers become suspicious about the true motive behind a company's CSR activities or conclude that the only motive behind a sin company's engagement in CSR is to improve its image than those CSR activities may backfire on the company. Hence, advertising CSR engagements may not alleviate the negative stigma that surrounds Sin Stocks. If investors learn about a company's CSR activities by an advertisement, they may be skeptical about the true intentions behind such actions. They may even see it as a squandering of resources if the investors follow the school of thought that argues controversial firms should not engage in CSR initiatives; thus, may punish those companies by lowering their equity holdings. On the other hand, investors may see advertisements in CSR initiatives as value enhancing projects and reward those companies by purchasing more equity. Advertising CSR can lead to one of three different scenarios in which CSR advertising leads to higher, lower or insignificant changes in Institutional Ownership. I

hypothesize that advertising CSR will result in lower Institutional Ownership given that institutional investors monitor how a firm manages its cash inflow and outflow and may view the expenditure as not only contradictory to the line of business, but an inefficient use of resources as there could be other value enhancing investments that Sin Stocks can undertake.

To test this hypothesis, I formulate a two-step regression that regresses Institutional Ownership against advertising Intensity. I again run panel data regression with time fix effects to account for unknown time trends shared among institutional investors.

### SECTION 3: DEFINING SIN STOCKS

In the Random House Unabridged Dictionary, sin is defined as “any act regarded as such transgression, especially a willful or deliberate violation of some religious or moral principle.” It is quite evident that “sinful” behavior is dictated by the religious environment. With many different religions and cultures, there is a great chance that there will be discrepancies between people and institutions in how they define what is a sinful action or industry. For example, Table 1 outlines the definitions of sinful firms used in previous academic studies.

In this study I first separate Alcohol, Gaming, Tobacco, Oil, Biotechnology, Defense, Food, Soda, and Recreation, into three distinct industry groupings: Sin, Controversial, and Comparable.<sup>4</sup> The sin industry grouping includes only the triumvirate of sin stocks (Alcohol, Tobacco, and Gaming) while the controversial industry grouping consists of the Oil, Biotech and Defense industries. The distinction made between the two industry groups are that one group creates products that promote human vice (Sin Stocks) and the other does not. Controversial industries are associated with emerging environmental or ethical issues. For example, the Oil industry is deemed controversial due to the amount of pollution and environmental damage it may cause and the Biotech industry because of engaging in activities that are deemed unacceptable by the society: genetic manipulation, food modification, and animal cloning. Lastly, I sort Food, Soda, Recreation, and then later Electrical, into the Comparable industry groupings as these industries produce products that are substitutes to the sin products.

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<sup>4</sup> I acknowledge that firms that operate in the Cement, Nuclear, Sex, and Marijuana Industries are controversial in nature, but I omit them in my analysis due to there being no CSR or Institutional Ownership data in the MSCI KLD Database and/or Thomson Reuters Spectrum Database.

Table 1 presents the various definitions of Sin Stocks used in previous academic studies.

| TABLE 1: Sin Stock Definition Used in Academic Literature |                          |   |  |
|---|--------------------------|---|--|
| References  | Terms                    | Definitions   | Illustrated Industries   |
| Waxler (2004)   | Vice Stock               | “Any company that makes at least 25% of its revenues from politically incorrect products in one of four sectors: tobacco, gambling, defense/weapons, and liquor”  | Tobacco, gambling, alcohol, defense/weapons  |
| Chong et al. (2006)                                       | The Vice Fund            | Deliberately intends to invest in products often considered socially irresponsible”   | Aerospace/defense, alcoholic beverages, tobacco, casinos & gambling, and lotteries |
| Salaber (2007)  | Sin Stocks               | “Returns on publicly-traded companies involved in producing tobacco, alcohol, and gaming”   | Alcohol, gambling, tobacco   |
| Hong and Kacperczyk (2009)                                | Sin Stocks               | “Publicly traded stocks in the gaming, tobacco, and adult entertainment industries”   | Triumvirate of Sin: Alcohol, Tobacco, Gaming                                       |
| Statman & Glushkov (2009)                                 | Shunned Companies        | Shunned companies are those that KLD classifies as associated with at least one of the following: tobacco, alcohol, gambling, firearms, military, or nuclear operations   | Tobacco, alcohol, gambling, firearms, military, nuclear operations                 |
| Kim and Venkatachalam (2011)                              | Sin stocks               | “Publicly traded stocks in the gaming, tobacco, alcohol, and adult entertainment (Hong & Kacperczyk, 2009)”   | Tobacco, alcohol, gaming, adult entertainment industry                             |
| Cai et al. (2012)   | Sinful industries        | “Products, services, or concepts that for reasons of delicacy, decency, morality, or even to fear to elicit reactions of distaste, disgust, offense or outrage when mentioned or when openly presented (Wilson and West, 1981)” | Sin industries: alcohol, tobacco, gamble<br>Others: weapon, cement, oil, biotech   |
| Jo and Na (2012)  | Controversial industries | “Publicly traded stocks in the gaming, tobacco, alcohol, and adult entertainment (Hong & Kacperczyk, 2009)”   | Alcohol, tobacco, gambling, and others   |
| Leventis et al. (2013)                                    | “sin” firms              | “Companies that promote vice, such as those companies involved in the alcohol, firearms, gambling, military, nuclear power, and tobacco industries (Heal, 2008)”  | Alcohol, firearms, gambling, military, nuclear power, tobacco                      |

(this table is copied from (Oh, Bae, Kim, 2016 Paper)

Before continuing with the analysis, I first test whether companies that operate in the sinful industries have lower Institutional Ownership than the companies operating in the controversial and comparable industries (to confirm the Social Norms Effect). After, I test whether Institutional Ownership averages of the industry groupings are significantly different, especially between Sin and Controversial companies to confirm whether my distinction of sin and controversial companies is statistically relevant. Although, companies that operate in the controversial industries

have higher Institutional Ownership than the companies operating in the sin industries there was a statistically insignificant difference in Institutional Ownership means between those two groupings, suggesting that the Social Norms Effect is present in both the triumvirate and controversial industries and that my distinction between the two industry groupings is insignificant. Although there are many different definitions outlining what constitutes as a sinful industry, it seems that institutional investors see Alcohol, Tobacco, Gambling, Oil, Biotech, and Defense as all sinful industries and from now on will be referred to as Sin Stocks for the rest of the paper.

To confirm the last statement, I first test the difference in Ownership means between Sin (Gambling, Alcohol, and Tobacco), Controversial (Oil, Biotech, and Defense) and Comparable Stocks (Pop, Food, and Recreation). The results are presented in Panels A and B of Table 2 and they show that Sin Stocks have lower Institutional Ownership (63%) than both their Comparables (65%) and Controversial Stocks (67%). Interestingly, Controversial Stocks have higher Institutional Ownership than the Sin Stock Comparables. However, there are insignificant difference in means between Sin and Controversial Industry Groupings, which lead me to redefine the industries I include under the Sin industry grouping (Controversial firms being now Sin Stocks). To be consistent and accurate, I add more comparable firms to account for the additional industries that are Comparable to the Controversial (now defined as Sin) Stocks and test whether there is a significant difference in Institutional Ownership means between Sin, Controversial, and Comparable Stocks. Once again, I run an ANOVA test to confirm that Comparables to Controversial firms have statistically significant higher Institutional Ownership than Controversial firms. That is, I add firms (in group 22 of Fama & French Industry Classification) that are comparable to the Biotech, Defense, and Oil industries and rerun the analysis. The results are presented in Panels C and D of Table 2 and they confirm that there is a Social Norms Effect as Comparables have higher Institutional Ownership (69%) than Controversial (67%) and Sin Stocks (63%) and that the differences in Institutional Ownership means are statistically significant.

Table 2 presents the means of Comparable, Controversial, and Sin Stocks and the results for the ANOVA tests. **Panel A** of table 2 presents the average percent of shares held by institutions in firms operating in the Sin Stock Comparables (Food, Soda, and Recreation), Controversial Stocks (Biotech, Defense, and Oil) and Sin Stocks (Alcohol, Gambling, Tobacco) industries. **Panel C** also presents the percent of shares held by Institutions of the same three groupings, only this time firms that operate in the Electrical Industry are added to the Sin Stock Comparable grouping. Everything else stays the same. **Panel B and D** present the results for the ANOVA tests run to compare the difference in means of the percent equity holdings of the firms operating in the three industry groupings. Once again, the only difference between **Panels B** and **D** are that firms that operate in the Electrical Industry are added to Comparables in **Panel D**.

| TABLE 2: Institutional Ownership Means |                |        |          |                |               |     |
|--|----------------|--------|----------|----------------|---------------|-----|
|  | <u>PANEL A</u> |        |          | <u>PANEL B</u> |               |     |
|  | N              | Mean   | Std. Dev | Comparable     | Controversial | Sin |
| Comparable                             | 397            | 64.873 | 23.571   | -              |               |     |
| Controversial                          | 2371           | 66.711 | 25.508   | 1.838          | -             |     |
| Sin                                    | 195            | 62.996 | 17.273   | -1.877         | -3.715        | -   |
|  | <u>PANEL C</u> |        |          | <u>PANEL D</u> |               |     |
|  | N              | Mean   | Std. Dev | Comparable     | Controversial | Sin |
| Comparable                             | 1156           | 68.579 | 22.383   | -              |               |     |
| Controversial                          | 2371           | 66.711 | 25.508   | -1.868*        | -             |     |
| Sin                                    | 195            | 62.996 | 17.273   | -5.583*        | -3.715        | -   |

## SECTION 4: DATA

To test the hypotheses, I compile a merged dataset that contains the information of a firm's Institutional Ownership (the percentage of shares that are held by institutional investors and the number of institutions that have holdings), level of CSR engagement, and financial characteristics. To assess a firm's level of CSR engagement I gather data from the MSCI KLD database. The KLD Stats database is the most common tool used by academics and investment managers in measuring Corporate Social Responsibility. The database itself provides information on over 3000 companies over a wide range of ESG performance indicators. Specifically, the KLD's rating criteria cover approximately 80 indicators spread across seven major issue areas: community, corporate governance, diversity, employee relations, environment, human rights, and product quality and safety. Each area has strength and concern items that are each scored on a binary level; 0 if the

company does not meet the assessment criteria established for an indicator and 1 if the company does meet the established criteria. In this study, I assess the affect these CSR indicators have on the institutional ownership of sin stocks.

I gather Institutional Ownership data from the Thomson-Reuters 13(f) database. Thomson Reuters is uniquely positioned as one of the leading institutional ownership databases due to it being contracted by the Securities Exchange Commission to process the Institutional Ownership Data. The 13(f) dataset is based on original SEC form 13F filings, which require that institutions with an investment discretion equal to or over 100 million USD of equity assets at the end of each year to provide quarterly reports of their long holdings in the upcoming year. Thomson-Reuters also classifies institutions into five groups depending on the line of business and their different legal and fiduciary obligations. The groups are: Banks (Type 1), Insurance Companies (Type 2), Investment Companies (Type 3), Independent Investment Advisors (Type 4), and Others (Type 5) that include university endowments and public pension funds. However, due to an unresolved mapping issue that misclassifies many institutions as either Type 4 (Independent Investment Advisors) or Type 5 (Others including Pension Funds and University Endowments) I restrict my analysis to just focusing on Institutional Ownership as a sum of the equity held by all institution types.

I gather financial data from Compustat and CRSP. I use Compustat to gather accounting information such as advertising expense, sales, total assets, total liabilities, net income and capital expenditures. I gather year end stock price and shares outstanding data from CRSP to calculate a firms Market Capitalization at the end of the year and include it in my compiled dataset. I use the accounting data to calculate other control variables that may have a potential influence Institutional Ownership.

My sample of firms include firms in the triumvirate sin industries: Alcohol, Tobacco, and Gambling, as well as those in industries with emerging social, environmental, or ethical issues such as Defense, Oil, and Biotech. I first download the entire Compustat and MSCI KLD databases and merge them together using a firm's tickers symbol and fiscal year as a link between the databases (33 239 observations). I then follow the same method to merge the already combined Compustat and KLD database with CRSP. Merging all three datasets resulted in a total of 33,086 observations. After creating a comprehensive dataset with the control variables needed for the

analysis, I manually select the firms that I want to include in the analysis by selecting firms based on their Security Identification Code (SIC) or their North American Industrial Classification Code (NAICS) and then download their Institutional Ownership data.

Based on Fama and French 48 industry classification I select stocks that are in groups 2, 3, 5, 6, 13, 26, and 30. Stocks in group 4 with SIC Codes 2080-2085 are alcohol firms, group 5 with SIC codes 2100-2199 are tobacco firms, group 26 with SIC codes 3760-3769, 3795, and 3480-3489 are defense firms, group 30 with SIC codes 1300, 1310 -1339, 1370, 1382, 1389, 2900 -2912, 2990-2999 are oil firms. Biotech firms make up a portion of group 13 with SIC codes 2833-2836. I follow Hong and Kacperczyk (2009) and identify gambling stocks with the following NAICS codes: 7132, 71312, 713120, 71329, 713290, 72112, 721120) since the Fama and French SIC codes do not separate gaming stocks from hotel and other entertainment stocks. I also select a sample of comparable companies that serve as substitutes to the sin companies. I use firms operating in the Food (group 2), Candy & Pop (group 3), Recreation Industries (group 6) as substitutes to tobacco, alcohol, and gambling firms. Appendix A provides a specific outline of how the comparable firms were identified. After developing the list of companies to include in the analysis, I download the rest of the data from Thomson Reuters and merge all the datasets using their ticker symbols and filing year (3935 observations). I remove observations that have incomplete data and have Institutional Ownership above 100% as that may be due to errors in data or other external factors resulting me with a final total of 3722 observations.

Before I continue with the analysis, I run a t-test to further confirm that the Social Norms Effect is present on the redefined Sin Stocks (Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco). Table 2 confirms that the triumvirate Sin Stocks have lower Institutional Holdings than their Comparables, and that the Controversial Companies also have lower Institutional Holdings than their Comparables. However, it does not explicitly confirm that Comparables for all Sin Stocks have higher Institutional Holdings than Sin Stocks. Panel B of Table 5 shows that the Comparable firms do indeed have higher Institutional Ownership compared to Sin Stocks. After confirming, that Sin Stocks are shunned by institutional investors, I reduce my dataset to only firms that operate in the Sin Industries to test whether CSR does offset the negative stigma associated with Sin Stocks. Comparable companies are not included in further analyses because there is no negative social stigma that is associated with them, so CSR engagement may not be

viewed by institutions as an attempt to offset the bad that is otherwise associated with Sin Stocks. Table 3 outlines how many observations are included in the analysis by industry.

Table 3 provides the sample distribution of the firms studied over the period 2000-2016 after the merging of the Compustat, CRSP, KLD, and Thomson Reuters databases. The table presents the number of firm year observations per industry and the percentage they cover of the final data sample. Firm SIC and NAICS codes mentioned above have been used to identify the industry the firm operates in.

| TABLE 3: Summary of Observations |                      |                          |
|----------------------------------|----------------------|--------------------------|
| Industry                         | Number of Firm Years | Percentage of Firm Years |
| Alcohol                          | 58                   | 1.56                     |
| Tobacco                          | 33                   | 0.89                     |
| Gambling                         | 104                  | 2.79                     |
| Defense                          | 48                   | 1.29                     |
| Oil                              | 998                  | 26.81                    |
| Biotech                          | 1325                 | 35.60                    |
| <b>TOTAL SIN</b>                 | 2566                 | 70.22                    |
| Soda                             | 66                   | 1.77                     |
| Food                             | 172                  | 4.62                     |
| Recreation                       | 159                  | 4.27                     |
| Electrical                       | 759                  | 20.39                    |
| <b>TOTAL COMPARABLE</b>          | 1156                 | 29.78                    |
| <b>TOTAL OBSERVATIONS</b>        | 3722                 | 100.00                   |

## SECTION 5: MEASUREMENT AND METHODOLOGY

### Sec 5.1 Dependent Variables

Institutional Ownership (IOP) is the percentage of shares held by investing institutions in Thomson Reuters of company  $i$  at the end of year  $t$ . Institutional Ownership (IOP) is calculated by totaling the shares held by all five types of institutional money managers and dividing them by company  $i$ 's shares outstanding at end of year  $t$ . For further analysis, I also add the number of institutions that have holdings of Company  $i$  at year  $t$  as an alternative measure to Institutional Ownership (ION).

### Sec 5.2 Independent Variables

I follow Hilman and Keim (2011) and Baron et al. (2011) to construct an aggregate CSR index. For each of the five indicators: Community, Environment, Employee Relations, Diversity, and Product Quality I first total each of the indicator's strength items for firm  $i$  at year  $t$  and subtract

it by the sum of all of concern items for firm *i* at year *t* totaled with the maximum possible number of the concern items at year *t*. I then divide the number by the total maximum possible number of an indicator's strength and concern items to get an indicator's score. To get the CSR index (CSRI), I then total each of the indicators' scores and divide it by the number of indicators (5). For Robustness I follow Cai, Jo, & Pan (2011) and calculate an alternative variable: Net CSR (NCSR). To get the score, I take the difference between the number of strength items a firm has engaged in and the number of concern items it has.

### Sec 5.3 Control Variables

I use several accounting indicators to control for a firm's size, performance, profitability, debt, and liquidity. Total Assets are used to control for size, total sales/revenue is used to control for profitability, Return on Assets, and Return on Equity are used to assess a firm's performance, Leverage is used to control for debt, and Market Capitalization is used to control for liquidity. In the second part of the analysis, I construct an accounting variable called advertising expense, which is the advertising expense scaled by a firm's total assets. The variable abbreviations and their definitions are found in table 4.<sup>5</sup>

Table 4 presents the abbreviations of the variables used in the upcoming analyses, their definitions or method of calculation, and the database from which they were gathered.

| TABLE 4: Variable Definitions |  |                 |
|-------------------------------|--|-----------------|
| Variables                     | Definitions  | Data Source     |
| <b>Ownership</b>              |  |                 |
| IOP                           | The percentage of shares held by all investment institutions in firm <i>i</i> at year <i>t</i> .   | Thomson Reuters |
| ION                           | The total number of institutions that had investments in firm <i>i</i> at year <i>t</i>  | Thomson Reuters |
| <b>CSR Measures</b>           |  |                 |
| CSRI                          | An aggregate index measurement considering 5 ESG dimensions: Environment, Community, Employee Relations, Diversity, and Product for firm <i>i</i> at year <i>t</i> . | KLD             |
| NCSR                          | The difference between the total number of strength items and concern items of firm <i>i</i> at year <i>t</i> .  | KLD             |
| <b>Control Variables</b>      |  |                 |
| ADVINT                        | Advertising expense scaled by total assets.  | COMPUSTAT       |
| Assets                        | Total Assets of firm <i>i</i> at year <i>t</i> .   | COMPUSTAT       |
| Sales                         | Total Sales (Revenue) of firm <i>i</i> at year <i>t</i> .  | COMPUSTAT       |
| ROA                           | Return on Assets of firm <i>i</i> at year <i>t</i> .   | COMPUSTAT       |
| ROE                           | Return on Equity of firm <i>i</i> at year <i>t</i> .   | COMPUSTAT       |
| LEV                           | Leverage: Total Debt scaled by Total Assets of firm <i>i</i> at year <i>t</i> .  | COMPUSTAT       |
| MCAP                          | Market Capitalization: Year-end closing price multiplied by total shares outstanding   | CRSP            |

<sup>5</sup> Please note that I use these abbreviations presented in table 4 in the upcoming tables for the sake of space and brevity.

## Sec 5.4: Methodology

To answer the first question, whether CSR engagement offsets the negative stigma surrounding Sin Stocks, I run panel data regressions with time dummies to account for firm and time fixed effects. I formulate the following model assuming a linear relationship between Institutional Ownership and CSR engagement. I take the log of Assets, Market Capitalization, and Sales due to the values being drastically higher than the other variables.

$$IO_{i,t} = \beta_1 * CSRI_{i,t-1} + \beta_2 (\text{Control Variables}_{t-1}) + \beta_3 ** \text{Industry Grouping Dummy} + \varepsilon_i.$$

In the second part of my analysis, I formulate a two-step model that focuses on answering whether advertising CSR helps a Sin Stock disassociate itself from the negative social stigma. Oh, Bae & Kim (2016) find that Sin Stocks advertise their CSR engagement more intensely than Non-Sin Stocks, so I assume the same in the analysis. I follow their approach to determine an estimated CSR advertising intensity. First, I estimate the following regression:

$$ADV_{i,t} = \alpha_i + \beta CSR_{i,t-1} + \varepsilon_i,$$

from which the estimated advertising intensity  $ADV_{i,t}$  is obtained. After, the estimated advertising intensity will be used in the second step that estimates the model of CSR related advertising on its Institutional Holdings. I again will estimate a panel regression with time fixed effects. In the second step, I estimate the following model:

$$IO_{i,t} = \beta_1 * ADV_{i,t} + \varepsilon_i.$$

Instead of adding control variables to the analysis, I split the data into above and below certain firm characteristics such as CSRI score and advertising intensity to dissect potentially different attitudes investors may have to a different set of firms.

## SECTION 6: EMPIRICAL ANALYSIS

### Sec. 6.1: Descriptive Statistics

Table 5 Panel A shows the summary statistics for just the sin stocks used in the overall analysis. Table 5 Panel B compares the means of Institutional Ownership for the subsample of firms that are Sin Stocks with those that are Non-Sin Stocks. Table 5 Panel C compares the means of Institutional Ownership of Sin Stocks that are above average CSRI scores with Sin Stocks that are below CSRI scores.

Panel A of Table 5 shows that institutional investors, on average, owned 66.4% of stocks in the studied firms with the average number of institutions that have holdings in the firms being 317. The variance in both ownership levels are high as the standard deviation is 24.9 percent and the minimum percentage of shares owned by investors is almost 0 percent while the highest maximum ownership percentage is 99.9 percent. Regarding the number of institutional investors, the standard deviation is 389 with the minimum and maximum being 1 and 2391, respectively. The variance for Total Assets, Market Capitalization, and Total Sales is also high. The average total assets of the studied companies are \$12.8 billion with a standard deviation being \$34.9 billion. Market Capitalization is \$17.1 billion on average with a deviation being approximately \$45.4 billion. Average Sales for the firms in the studied samples are 9.5 billion with a standard deviation equalling \$34.9 billion. The average Leverage is approximately 49 percent, Return On Assets (ROA) is about -6 percent, and return on equity (ROE) being about -7 percent. The average Advertising Intensity for Sin Stocks is 2.43 percent with a standard deviation being 5 percent. The minimum and maximum Advertising Intensity are .02 percent and 5.2 percent.

**Panel A** of Table 5 shows the summary statistics used in the empirical analysis for Sin Stocks. Sin Stocks include firms that operate in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries from the year 2000 to 2016. The mean, standard deviation, and the minimum and maximum scores are provided for the percentage of shares owned by institutions (IOP), the number of institutions holding shares in the firms (ION), the Corporate Social Responsibility Index (CSRI), Net Corporate Social Responsibility (NCSR), Assets (in millions), Market Capitalization (MCAP in millions), Sales (in millions), Return on Assets (in percentage), Return on Equity (in percentage), Leverage (LEV in percentage), and Advertising Intensity (ADVINT in percentage). Institutional Holding data (IOP and ION) was gathered from Thomson Reuters Spectrum Database, CSR data (CSRI and NCSR) was gathered from (KLD Research and Analytics), the accounting variables were gathered from Compustat and Market Capitalization was gathered from CRSP. **Panel B** presents the mean summary statistics for Sin Stocks and their Comparables (Food, Soda, Recreation, and Electrical). \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively. **Panel C** presents the mean summary statistics for two subsamples of the Sin stock data with CSR Index (CSRI) above and below the mean value of the sample CSRI. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

| TABLE 5: Descriptive Statistics |         |         |        |        |          |           |          |           |           |          |
|---------------------------------|---------|---------|--------|--------|----------|-----------|----------|-----------|-----------|----------|
|                                 | PANEL A |         |        |        | PANEL B  |           |          | PANEL C   |           |          |
|                                 | Mean    | Std.dev | Min    | Max    | Sin Mean | Comp Mean | t-stat   | Above CSR | Below CSR | t-stat   |
| IOP                             | .6642   | .2499   | .0000  | .9993  | .6642    | .6857     | 2.51***  | .6720     | .6573     | 1.48*    |
| ION                             | 317     | 389     | 1      | 2391   | 317      | 263       | -2.66    | 361       | 278       | 5.38***  |
| CSRI                            | .4318   | .0322   | .3089  | .6262  | .4318    | .4355     | 2.93***  | .4565     | .4096     | 53.41*** |
| NCSR                            | -.4142  | 2.0775  | -7     | 12     | -.4142   | .1955     | 7.97***  | 1.14      | -1.82     | 51.59*** |
| Assets                          | 12838   | 34914   | .734   | 349493 | 12838    | 4442      | -7.97    | 12763     | 12905     | -.10     |
| MCAP                            | 17148   | 45422   | 13     | 511887 | 17148    | 7701      | -6.61    | 20079     | 14512     | 3.10***  |
| Sales                           | 9538    | 34928   | -21    | 433526 | 9538     | .3666     | -5.62    | 8600      | 10382     | -1.29    |
| LEV                             | .4955   | .2905   | 0      | 3.5646 | .4955    | .4196     | -7.77    | .4741     | .5148     | -3.55    |
| ROA                             | -.0634  | .2751   | -1.731 | 1.617  | -.0634   | .0300     | 11.03*** | -.0674    | -.0599    | -.68     |
| ROE                             | -.0663  | .7189   | -3.779 | 4.936  | -.0663   | .0631     | 5.90***  | -.0634    | -.0689    | .193     |
| ADVINT                          | .0243   | .0500   | .0002  | .5258  | -        | -         | -        | .0214     | .0283     | -1.55*   |

The number of observations in Panel A for all variables except ADVINT (advertising intensity) is 2566. For ADVINT (advertising intensity) the number of observations goes down from 2566 to 506 due to missing values in the dataset (firm years with missing values for advertising expense were deleted). The same holds true for the first column in Panel B, where the means of Sin Stock data are presented once again. The number of observations for Comparable Companies (Column 2 Panel B) is 1156. Finally, the number of observations for firms with above CSRI scores are 1000 and 1163 for firms with below CSRI for all variables except ADVINT. The number of observations for firms with above average ADVINT is 295 while for firms with below average intensity is 211.

Panel B of Table 5 shows presents the mean summary statistics between Comparable (Comp) and Sin Stocks. Non-sin stocks have a higher percentage of their equity being held by institutional investors, which is 68.5 percent compared to the 66.4 percent of the equity ownership for Sin Stocks. The difference in ownership percentage means is significant at the 99 percent confidence level confirming the Social Norms theory; that Sin stocks are omitted by institutional investors due to the nature of the firm. Non-Sin stocks also have higher CSR scores, with CSRI being .4355 and NCSR being .1955, than Sin-Stocks which have a CSRI of .4318 and an NCSR of -.4142. The difference in means for both CSR measures are statistically significant at the 99 percent level. This is consistent with the industrial bias that Sin Stocks face as they are known to socially harmful that socially irresponsible.

Panel C of Table 5 presents the mean summary statistics for firms above and below the average CSRI score. Firms that engage in above average CSR have a higher Institutional Ownership mean (67.2 percent) than firms that engage in below average CSR (65.7 percent). The difference in means is statistically significant at the 90% confidence level. Firms that engage in above average CSR also have more institutional investors owning a portion of their equity (361) compared to the firms that engage in lower amounts of CSR (278). Those same firms that engage in above average CSR have higher Market Capitalizations. Both the differences in means are statistically significant at the 99% confidence level. Advertising intensity is greater for firms that engage in below average CSR (.28 percent) compared to the firms that do (.21 percent) with the difference in means being statistically significant at the 90% level.

Table 6 presents the Spearman Correlation coefficients between the variables used in the analysis. The number of institutions that have holdings in Sin-Stocks are significantly and positively correlated with the percentage of equity owned by the institutions, indicating that an increase in the number of holdings does result in an increase of the number of shares owned by institutional investors. Both CSR measures are significantly correlated with the number of institutional investors owning shares but not with the number of shares owned by investors. The Return on Assets ratio is the only control variable that is significantly correlated with both measures of Institutional Ownership. Both performance indicators (ROA and ROE) are positive and significantly correlated with each other. This multicollinearity may cause one of the variables to be insignificant in the regressions. I acknowledge that the other control variables are also

significantly correlated with each other, but I do not disentangle them in the analysis due to them representing different firm characteristics. Also, Advertising Intensity is significantly correlated with both CSR measures suggesting that Sin Stocks advertise more if they engage in more CSR paving the way for further analysis on the influence engagement in CSR plays on a Sin-Stocks Advertising Intensity.

Table 6 presents the Spearman correlation coefficients among the variables used in the analysis for the 2566 firm year observations from 2000 to 2016. IOP and ION are the institutional holding variables representing the percentage of shares owned by institutions and the number of institutions that have holdings, respectively. CSRI and NCSR represent the Corporate Social Responsibility Index and Net Corporate Social Responsibility score. MCAP represents Market Capitalization, LEV stands for leverage, ROA for Return on Assets, ROE for Return on Equity, and ADVINT for advertising intensity. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

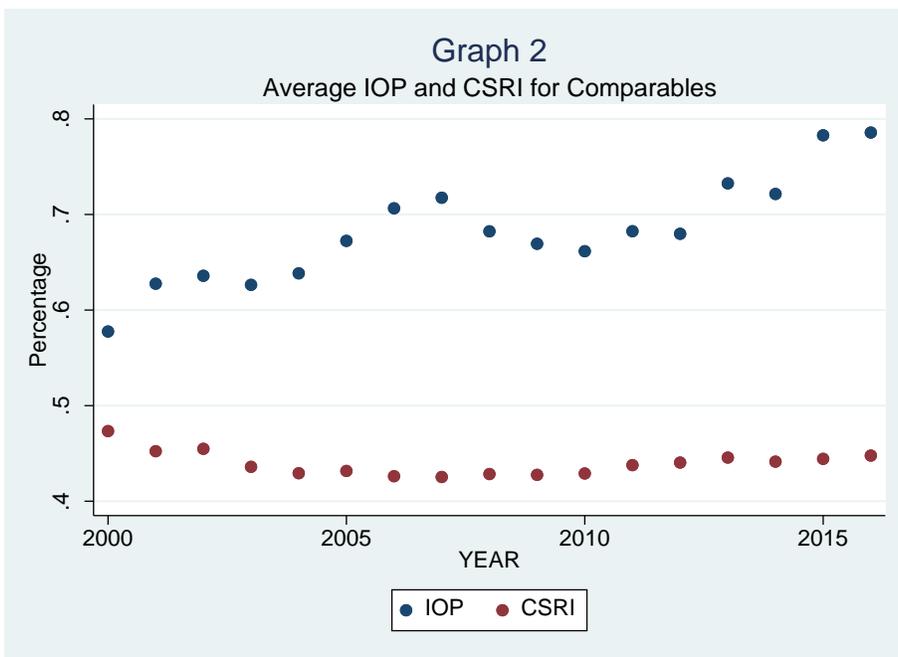
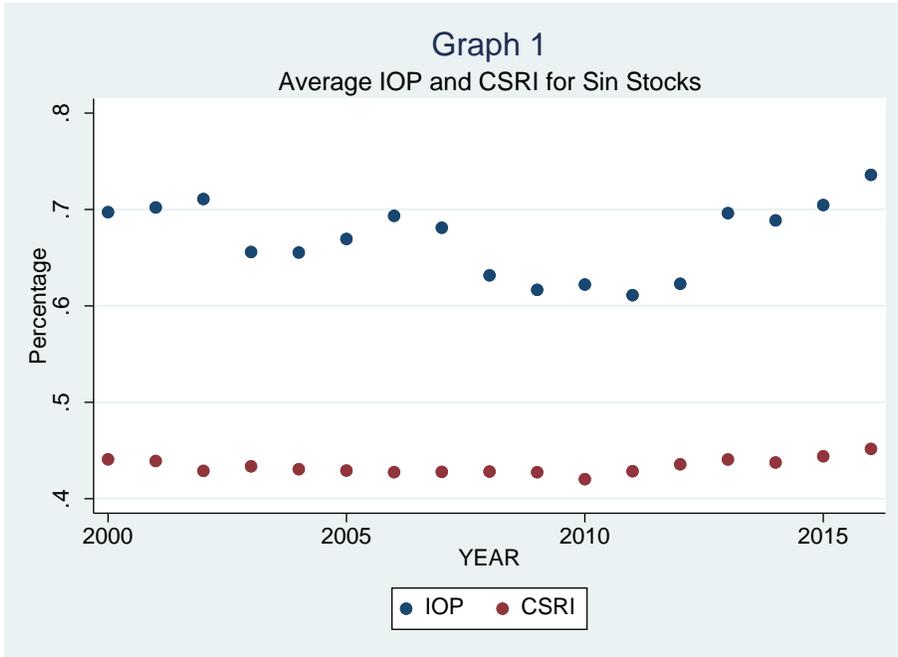
| TABLE 6: Correlation Matrix |          |          |          |          |          |          |          |          |          |       |        |
|-----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------|--------|
|                             | IOP      | ION      | CSRI     | NCSR     | ASSETS   | MCAP     | SALES    | LEV      | ROA      | ROE   | ADVINT |
| IOP                         | 1.000    |          |          |          |          |          |          |          |          |       |        |
| ION                         | .2325*** | 1.000    |          |          |          |          |          |          |          |       |        |
| CSRI                        | .0387    | .2458*** | 1.000    |          |          |          |          |          |          |       |        |
| NCSR                        | .0376    | .2785*** | .9875*** | 1.000    |          |          |          |          |          |       |        |
| ASSETS                      | .0314    | .7526*** | .0386    | .0436    | 1.000    |          |          |          |          |       |        |
| MCAP                        | .0248    | .8415*** | .1447*** | .1648    | .8345*** | 1.000    |          |          |          |       |        |
| SALES                       | -.0072   | .5868*** | -.0373   | -.0474   | .8878*** | .7680*** | 1.000    |          |          |       |        |
| LEV                         | .0484    | .0924*** | -.0361   | -.0248   | .0590    | .0479    | .0419    | 1.000    |          |       |        |
| ROA                         | .2088*** | .3121*** | .0445    | .0559    | .1803*** | .2142*** | .1489*** | -.0924** | 1.000    |       |        |
| ROE                         | .1085    | .2121*** | .0474    | .0550    | .1228*** | .1452*** | .1034*** | .1530*** | .4532*** | 1.000 |        |
| ADVINT                      | .0022    | .0474    | .0722**  | .0871*** | .0066    | .0612    | -.0038   | -.0426   | .0581    | .0117 | 1.000  |

Figure 1 presents the average percent of shares held by institutions between the years 2000 and 2016 for Sin Stocks (Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco) and Comparables (Soda, Food, Recreation, and Electrical) as well as the average firm Corporate Social Performance (CSRI) scores. IOP stands for Institutional Ownership Percentage and CSRI stands for Corporate Social Responsibility Index.

Figure 1 presents two graphs that present the average percent holdings of firms that operate in the Sin Industries and the Comparable Industries, respectively. The two graphs also show annual firm Corporate Social Performance scores (CSRI scores), again for the two industry groupings. Interestingly, there are some years that Sin Stocks had higher Institutional Ownership percentages than their Comparables (years 2000 to 2016). However, there is no clear trend in the percentage of shares held by institutions (IOP) for Sin Stocks while there is a clear upward trend of IOP for their Comparables over the studied time period. This indicates that the Social Norms Effect keeps the Institutional Ownership percentage of Sin Stocks relatively stagnant over time. Average annual firm CSRI scores also remain stagnant over time for both industry groupings. However, since the

charts represent the overall data sample averages, and not firm specific averages I continue with the analysis.

FIGURE 1: IOP and CSRI Time Series Graphs



## Sec. 6.2: Regression Analyses

### Sec 6.2.1: Does CSR engagement offset the negative stigma associated with Sin Stocks?

The first part of the analysis focuses on determining whether CSR engagement by firms that operate in the Sin Industries offsets the negative stigma that is associated with them. In all the calculated regression models, the percent of equity owned by institutions (IOP) and the number of institutions holding shares (ION) are used as proxies for Institutional Ownership. The corporate social responsibility index (CSRI) is the primary independent variable. The net corporate social responsibility score (NCSR) is the secondary independent variable used for robustness checks. In all the equations (for primary and robustness models), size, market liquidity, profitability, financial performance, and debt are used as control variables. Return on Assets and Return on Equity are used as independent proxies for financial performance due to their multicollinearity.

Table 7 presents the results for the first four models calculated. On the left-hand side, the effect CSRI has on the percentage of shares owned by investing institutions is presented while on the right side the affect CSRI has on the number of institutions that have holdings in Sin stocks are presented. Both sides are split into two distinct models to account for the multicollinearity that is shared between Return on Assets and Return on Equity. Table 8 presents the results in the similar fashion Table 7 does, except that NCSR is used as the explanatory variable instead of CSRI.

Table 7 and Table 8 yield similar results. There is a significantly negative relationship between both CSR measures and the percentage of shares owned by Institutions (IOP). For example, a .01 increase in a firms CSRI score results in a 0.38% decrease in the shares owned by Institutions (Table 7) and a .01 increase in a firms NCSR score results in a .006% decrease in the shares owned (Table 8). On the other hand, there is a significantly positive relationship between both CSR measures and the number of institutions that have equity holdings in Sin Stocks. A .01 increase in CSRI results in the number of institutions to go up by 340 (Table 7) and an increase in NCSR by .01 results in the number of institutions to go up by 5 (Table 8). The R-squares for the left-hand side of both tables (dependent variable being ION) are much higher than they are for the models on the right-hand side of the tables (dependent variable being IOP). Instead of CSR offsetting the negative stigma that is associated with Sin Stocks (would be increasing the percentage of shares owned by institutions), engagement in CSR seems to have the opposite affect on Institutional Ownership. Interestingly, financial performance and market liquidity both have a positive affect on the number of shares owned by institutional investors.

Table 7 presents the results of regressions using data from 2000 to 2016 for 2163 firm year observations. The dependent variable on the left-hand side is IOP (the percentage of shares owned by institutional investors) and on the right-hand side is ION (the number of institutions that have holdings in Sin Stocks). Sin stocks are defined as any firm that operates in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries. The Corporate Social Responsibility Index (CSRI) is used as the explanatory variables. Assets, MCAP (Market Capitalization), and Sales are all logarithmically scaled. Columns 1 and 3 include Return on Assets (ROA) and columns 2 and 4 include Return on Equity (ROE). All explanatory and control variables are measured at t-1 and the dependent variables are measured at t. Industry dummy variable are included and have the value one for the corresponding industry the firm belongs to. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

| <i>TABLE 7: CSRI on Institutional Ownership</i> |                   |                   |              |              |
|---|-------------------|-------------------|--------------|--------------|
|   | IOP               |                   | ION          |              |
| CSRI  | -.3840*** (.1364) | -.3940*** (.1363) | 339*** (110) | 343*** (110) |
| ASSETS  | .0118 (.0181)     | .0093 (.0181)     | 110*** (14)  | 112*** (14)  |
| MCAP  | .0782*** (.1453)  | .0791*** (.0145)  | 138*** (11)  | 137*** (11)  |
| SALES   | -.0041 (.0102)    | .0015 (.0096)     | 14* (8)      | 10 (7)       |
| ROA   | .0326 (.0199)     |                   | -18 (16)     |              |
| ROE   |                   | .0023 (.0054)     |              | -1 (4)       |
| LEV   | -.0186 (.0178)    | -.0267 (.0174)    | 8 (14)       | 11 (13.9)    |
| ALCOHOL   | .2128 (.1552)     | .2113 (.1561)     | -116 (106)   | -116 (107)   |
| BIOTECH   | .1590 (.1256)     | .1577 (.1262)     | -238*** (86) | -238*** (87) |
| DEFENSE   | .2468 (.1625)     | .2473 (.1634)     | -264** (111) | -265** (112) |
| GAMBLING  | .0967 (.1419)     | .0985 (.1427)     | -388*** (97) | -390*** (97) |
| OIL   | .1723 (.1247)     | .1722 (.1258)     | -314*** (85) | -315*** (86) |
| N   | 2163              | 2163              | 2163         | 2163         |
| YEAR DUMMY                                      | YES               | YES               | YES          | YES          |
| R SQUARED                                       | .1134             | .1096             | .7135        | .7117        |

Table 8 presents the results of regressions using data from 2000 to 2016 for 2163 firm year observations. The dependent variable on the left-hand side is IOP (the percentage of shares owned by institutional investors) and on the right-hand side is ION (the number of institutions that have holdings in Sin Stocks). Sin stocks are defined as any firm that operates in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries. The Net Corporate Social Responsibility (NCSR) score is used as the explanatory variables. Assets, MCAP (Market Capitalization), and Sales are all logarithmically scaled. Columns 1 and 3 include Return on Assets (ROA) and columns 2 and 4 include Return on Equity (ROE). All explanatory and control variables are measured at t-1 and the dependent variable are measured at t. Industry dummy variable are included and have the value one for the corresponding industry the firm belongs to. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

| <i>TABLE 8: NCSR on Institutional Ownership</i> |                  |                   |              |              |
|---|------------------|-------------------|--------------|--------------|
|   | IOP              |                   | ION          |              |
| NCSR  | -.0059***(.002)  | -.0061*** (.0022) | 5*** (2)     | 5*** (2)     |
| ASSETS  | .0122 (.0181)    | .0097 (.0181)     | 110*** (14)  | 111***(14)   |
| MARKET CAP                                      | .0776*** (.0145) | .0785*** (.0145)  | 139*** (11)  | 137***(11)   |
| SALES   | -.0039 (.0102)   | .0016 (.0095)     | 14 (8)       | 10 (7)       |
| ROA   | .0325 (.0199)    |                   | -18 (16)     |              |
| ROE   |                  | .0022 (.0054)     |              | -1 (4)       |
| LEV   | -.0186 (.0179)   | -.0266 (.0174)    | 7 (14)       | 11 (13)      |
| ALCOHOL   | .2079 (.1552)    | .2062 (.1560)     | -111 (106)   | -111 (107)   |
| BIOTECH   | .1528 (.1254)    | .1513 (.1261)     | -232*** (86) | -232*** (87) |
| DEFENSE   | .2403 (.1623)    | .2407 (.1633)     | -258** (111) | -259** (111) |
| GAMBLING  | .0904 (.1419)    | .0919 (.1426)     | -383*** (97) | -384***(97)  |
| OIL   | .1652 (.1247)    | .1650 (.1253)     | -308*** (85) | -309*** (86) |
| N   | 2163             | 2163              | 2163         | 2163         |
| YEAR DUMMY                                      | YES              | YES               | YES          | YES          |
| R SQUARED                                       | .1146            | .1107             | .7137        | .7119        |

The differences between the two measures of Institutional Ownership requires an explanation considering that there is a strong and significant correlation (Table 6) between the percentage of shares owned by institutions (IOP) and the number of institutional investors (ION). The regression results presented in Tables 7 and 8 are somewhat inconsistent with the correlation since one can observe that an increase in the number of institutions does result in an increase in the percentage of shares owned by investors. These results are also present in the upcoming model results (Tables 8 -12).

The decision about whether an institution wants to invest in a firm is relatively simple to make and it seems that CSR is a considerable variable factored in the decision. However, deciding how many shares to purchase is a more complex decision as there are a multitude of other factors investors consider that are exogenous to the models, as is reflected in the low R-squares of the models. For example, institutional investors may consider the covariance in returns between their portfolio and the returns of the firms they want to invest in. Furthermore, when institutions are

purchasing shares, they are most likely purchasing shares from other institutional investors which would not alter the percentage of shares owned by institutions. Also, considering that only institutional investors with above 100 million USD in investment discretion are used in the analysis, it is entirely possible that smaller firms (with below 100 million dollars in assets) are purchasing the shares from the larger institutions. This could also explain why the number of institutions is significant and positive as many of the smaller firms could be reaching the 100 million USD threshold.

Next, I go on to evaluate the effect CSR engagement has on the holdings of sin stocks with different financial characteristics. Hong, Kubik, and Cheinkman (2012) find that firms invest money in CSR when they are doing well and have money to spare. This could affect the Institutional Holdings in a positive manner as a firm that is more financially stable than others can further enhance its value with investments in Corporate Social Responsibility. Table 9 presents the results CSR engagement has on the Institutional Holdings of firms with above average (Panel A) and below average (Panel B) Cash. The same models that were calculated in Tables 7 and 8 are run with the only difference being that the entire data sample is split into firms with above and below average Cash. The results that are presented in Table 9 remain consistent with the results that have been presented in Tables 7 and 8.

Table 9 presents the panel regression results for Sin Stocks with above average cash (Panel A) and below average cash (Panel B) using data from 2000 to 2016 for a total of 2163 firm year observations. Sin stocks are defined as any firm that operates in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries. The dependent variable in the first columns of each panel set is IOP (the percentage of shares owned by institutional investors) and in the second is ION (the number of institutions that have holdings). The Corporate Social Responsibility Index (CSRI) is used as the explanatory variable. Assets, MCAP (Market Capitalization), and Sales are all logarithmically scaled. All explanatory and control variables are measured at t-1 and the dependent variable are measured at t. Industry dummy variable are included. A firm year takes the value 1 for the corresponding industry the firm year observation belongs to. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

| <i>TABLE 9: Above and Below Average Cash on Institutional Ownership</i> |                  |               |                  |            |
|---|------------------|---------------|------------------|------------|
|   | PANEL A: ABOVE   |               | PANEL B: BELOW   |            |
|   | IOP              | ION           | IOP              | ION        |
| CSRI  | -.3664** (.1507) | 122 (168)     | -.1076 (.3096)   | -129 (86)  |
| ASSETS  | .0121 (.0282)    | 164*** (30)   | .0546** (.0250)  | 49*** (7)  |
| MCAP  | -.01693 (.0282)  | 249*** (23)   | .1150*** (.0119) | 80*** (5)  |
| SALES   | -.0053 (.0161)   | -22 (17)      | .0055 (.01332)   | 10*** (4)  |
| ROA   | .0273 (.0407)    | 70 (44)       | -.0064 (.0226)   | -17*** (6) |
| LEV   | -.0542 (.0283)   | 50 (30)       | .1136 (.1223)    | -5 (7)     |
| ALCOHOL   | .0730 (.1671)    | 25 (136)      | .0160 (.0342)    | 58** (25)  |
| BIOTECH   | .0916 (.1207)    | -61 (98)      | -.0069 (.1466)   | -3 (7)     |
| DEFENSE   | .2443 (.1837)    | -84 (148)     | -.0031 (.0900)   | 1 (30)     |
| GAMBLING  | -.0510 (.1469)   | -340*** (118) |                  |            |
| OIL   | .0897 (.1197)    | -168* (97)    |                  |            |
| N   | 997              | 997           | 1166             | 1166       |
| YEAR DUMMY  | YES              | YES           | YES              | YES        |
| R SQUARED   | .0107            | .7016         | .2502            | .7266      |

Earlier, in Table 2 I have shown that the Social Norm effect holds true for firms in the triumvirate (Alcohol, Gambling, & Tobacco) industries and the controversial (Biotech, Defense, and Oil) with their being no significant difference in ownership means for both groupings but significant difference in IOP means between them and their Comparables. This suggests that institutional investors invest less in firms that operate in both industry groupings or simply do not invest in them. However, institutional investors may have different attitudes towards CSR engagement of firms that operate in the triumvirate sin industries and of firms that operate in the controversial industries. The primary distinction between the two industry groupings being that Sin Stocks manufacture products that promote human vice and controversial companies do not. Instead, controversial company operations are deemed to have ethical or environmental issues. Hence, I argue that it is entirely possible that CSR engagement by controversial firms could be a more effective tactic in attracting institutional investors than for the triumvirate Sin Stocks since the controversial firms could incorporate CSR to limit the environmental and social issues that are

otherwise associated with them. To test this, I split my data sample into 2 groups: Triumvirate and Controversial where Institutional Ownership is regressed against the CSRI scores for the firms that operate in the Triumvirate Sin (Alcohol, Gambling, and Tobacco) and Controversial Industries (Biotech, Defense, and Oil), respectively.

Table 10 presents the regression results for Sin Stocks in the Triumvirate Sin Industries: Alcohol, Gambling, Tobacco (Panel A); and Controversial Industries: Biotech, Defense, and Oil (Panel B) using data from 2000 to 2016 for a total of 2163 firm year observations. The dependent variable in the first columns of each panel set is IOP (the percentage of shares owned by institutional investors) and in the second is ION (the number of institutions that have holdings. The Corporate Social Responsibility Index (CSRI) is used as the explanatory variable. Assets, MCAP (Market Capitalization), and Sales are all logarithmically scaled. All explanatory and control variables are measured at t-1 and the dependent variable are measured at t. Industry dummy variable are included. A firm year takes the value 1 for the corresponding industry the firm year observation belongs to. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

|            | PANEL A: TRIUMVIRATE |               | PANEL B: CONTROVERSIAL |              |
|------------|----------------------|---------------|------------------------|--------------|
|            | IOP                  | ION           | IOP                    | ION          |
| CSRI       | -.2395 (.4436)       | 2878*** (668) | -.3336** (.1457)       | 328*** (115) |
| ASSETS     | -.0406 (.0484)       | -245*** (72)  | .0116 (.0193)          | 119*** (14)  |
| MARKET CAP | -.0110 (.0358)       | 373*** (54)   | .0854*** (.0154)       | 139*** (12)  |
| SALES      | .0142 (.0297)        | 94** (44)     | -.0075 (.0111)         | 16* (9)      |
| ROA        | .0178 (.1335)        | 360* (201)    | .0387* (.0206)         | -25 (16)     |
| LEV        | -.0423 (.0825)       | 544*** (124)  | -.0130 (.0185)         | -3 (14)      |
| N          | 173                  | 173           | 1990                   | 1990         |
| YEAR DUMMY | YES                  | YES           | YES                    | YES          |
| R SQUARED  | .3491                | .8657         | .1271                  | .7138        |

Table 10 presents the results. The first columns for each industry grouping indicate that institutional investors view CSR engagement of all companies that operate in the sin industries (triumvirate and controversial) in a similar manner. They tend to lower the percentage of shares they have in the firms as the coefficients between CSRI and IOP for both industry groupings are negative. However, it seems that the number of institutions that have holdings in the firms operating in both industry groupings goes up. Although these results are contradictory, they share the same pattern for both industry groupings indicating that institutional investors do not make a distinction between the triumvirate and controversial industries. As a Robustness check for all the earlier results, I split the CSR Index into the 5 dimensions that were used originally to calculate it (Environment, Community, Employee, Diversity, and Product) and regress the two proxies for Institutional Ownership against them for the entire data sample (Sin Stocks), the triumvirate Sin Stocks, and the Controversial Stocks. The results are shown in Table 11 and they are in line with

what has been previously shown, that CSR has a small influence on the percentage of shares owned by institutions. All the CSRI dimensions, except for diversity (which barely influences IOP) negatively influence the percentage of equity held in the Sin Stocks studied. Furthermore, the coefficients between the CSRI dimensions and IOP for each industry grouping do show that institutional investors do not make a distinction between firms that operate in triumvirate sin and controversial industries. For example, engagement in CSR that affects the environment, community, and product causes institutions to disinvest in all the firms. This could be caused by the fact that operations undertaken to bring the already negatively stigmatized product to the market, have the potential to negatively affect the community and environment or already do; thus, deeming CSR efforts in those areas contradictory. In the Oil industry for example, there is always the threat of an oil spill occurring which would exacerbate the environmental damage already caused by oil (fossil fuel emissions/combustion). The same can be applied to the Defense industry as military operations/wars have the potential to wipeout communities and ecosystems. Lastly, almost all CSR measures show large positive effects on the number of institutional investors.

Table 11 presents the panel data regression of the individual CSR dimensions (Environment, Community, Employee, Diversity, Product) used in the calculation of the Corporate Social Responsibility Index (CSRI) on Institutional Holdings using data from 2000 to 2016 for a total of 2163 firm year observations. **Panel A** presents the results for all Sin Stocks (firms operating in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries). **Panel B** presents the results for all Triumvirate Stocks (firms operating in the Alcohol, Gambling, and Tobacco Industries). **Panel C** presents the results for all Controversial Stocks (firms operating in the Biotech, Defense, and Oil Industries). **Appendix A** provides the methodology used to calculate the control variables. The first column of each Panel Set uses IOP (the percentage of shares owned by Institutions) as the dependent variable. The second column of each Panel Set uses ION (the number of Institutions that have holdings) as the dependent variable. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

|             | PANEL A: SIN         |                 | PANEL B: TRIUMVIRATE |                  | PANEL C: CONTROVERSIAL |                 |
|-------------|----------------------|-----------------|----------------------|------------------|------------------------|-----------------|
|             | IOP                  | ION             | IOP                  | ION              | IOP                    | ION             |
| ENVIRONMENT | -.0506<br>(.0844)    | 375***<br>(72)  | -.4372<br>.3864      | 4380***<br>(809) | -.0474<br>(.0907)      | 204***<br>(77)  |
| COMMUNITY   | -.0905<br>(.0851)    | -195***<br>(72) | .5259*<br>(.3161)    | -685<br>(662)    | -.1139<br>(.0909)      | -220***<br>(77) |
| EMPLOYEE    | -.1852***<br>(.0654) | 68<br>(55)      | .1232<br>(.2413)     | 2910<br>(505)    | -.2040***<br>(.0701)   | 134**<br>(59)   |
| DIVERSITY   | .0904*<br>(.0495)    | 14<br>(42)      | -.0922<br>(.1263)    | 865***<br>(264)  | .1124**<br>(.0542)     | .43<br>(46)     |
| PRODUCT     | -.1595***<br>(.0606) | 336<br>(52)     | -.1967<br>.1264      | -971<br>264      | -.1167*<br>(.0702)     | 390***<br>(59)  |
| N           | 2163                 | 2163            | 173                  | 173              | 1990                   | 1990            |
| YEAR DUMMY  | YES                  | YES             | YES                  | YES              | YES                    | YES             |
| R SQUARED   | .0031                | .0510           | .0365                | .7055            | .0073                  | .0046           |

When looking in the difference of ownership means (both for percentage and number) in Panel C of table 5, one can take note that Sin Stocks that have above average CSR scores, have a higher amount of percentage shares owned by institutional investors and a higher number of investors that have holdings in the studied firms. Perhaps, a reason for the negative relationship between the percentage of equity owned and CSR scores for Sin Stocks is due to a possible quadratic relationship between the two variables. Harjoto et al. (2017) find there is a concave relationship between Institutional Ownership and CSR. They find that institutional ownership starts to decline after a firm reaches its mean level of CSR performance. To test this phenomenon, I split my data into two samples: above and below average CSRI score (Corporate Social Performance). If there is indeed a concave relation between the variables, then the percentage of shares owned by institutions should go down for firms that engage in above CSR average and up for the other firms. I acknowledge that this changes my original first hypothesis, which is that engaging in CSR may result in three different scenarios: an increase, a decrease, or no significant changes in institutional ownership. If there is a concave function, then engaging in CSR would partly offset the negative stigma that is associated with Sin Stocks. In other words, there would be a positive relationship between Institutional Ownership and CSR engagement for firms that score below CSR average, but a negative or a more-weak positive relationship for firms that score above CSR average.

Table 12 presents the results in similar fashion that tables 7 and 8 do. The results do indicate an un-concave relationship between Institutional Ownership and the Corporate Social Responsibility index. When looking at the industry dummy variables, the percentage of shares owned by institutional investors goes up more significantly for firms that have below average CSRI scores than firms that have above average scores for each industry. For example, firms in the Alcohol industry and with below average CSRI scores, a .01 increase in their CSRI yields an increase in Institutional Ownership Percentage by .31% whereas for firms in the same industry but with above average CSRI scores yield only a .09% increase in Institutional Ownership Percentage. Interestingly, the number of institutional investors for a .01 increase in CSR scores goes down for both groups in each industry. However, that relationship is less negative for firms that have below average CSRI scores, except for firms that operate in the alcohol industry. Ultimately, a conclusion cannot be made because when looking at CSRI scores for all firms in all industries, there is a

negative relationship between IOP and CSRI for firms with below average CSRI scores, and positive relationship for firms with above average CSRI scores.

Table 12 presents the regression results for Sin Stocks with above average Corporate Social Responsibility Index (CSRI) scores (Panel A) and below average CSRI scores (Panel B) using data from 2000 to 2016 for a total of 2163 firm year observations. Sin stocks are defined as any firm that operates in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries. The dependent variable in the first columns of each panel set is IOP (the percentage of shares owned by institutional investors) and in the second is ION (the number of institutions that have holdings). The Corporate Social Responsibility Index (CSRI) is used as the explanatory variable. Assets, MCAP (Market Capitalization), and Sales are all logarithmically scaled. All explanatory and control variables are measured at t-1 and the dependent variable are measured at t. Industry dummy variable are included. A firm year takes the value 1 for the corresponding industry the firm year observation belongs to. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

| <i>TABLE 12: Above and Below CSR Average Engagement on Institutional Ownership</i> |                  |               |                  |               |
|--|------------------|---------------|------------------|---------------|
|  | PANEL A: ABOVE   |               | PANEL B: BELOW   |               |
|  | IOP              | ION           | IOP              | ION           |
| CSRI   | .1188 (.1856)    | 340* (176)    | -.5001** (.2163) | 604*** (152)  |
| ASSETS   | -.0121 (.0253)   | 167*** (22)   | .0637*** (.0245) | 83*** (17)    |
| MARKET CAP   | .0638*** (.0207) | 121*** (19)   | .0546*** (.0201) | 156*** (14)   |
| SALES  | .0044 (.0129)    | 20* (11)      | -.0043 (.0147)   | 11 (10)       |
| ROA  | -.0242 (.03257)  | -52* (30)     | .0555** (.0243)  | -12 (17)      |
| LEV  | -.0462* (.0272)  | -1 (25)       | .0057 (.0238)    | -9 (17)       |
| ALCOHOL  | .0937 (.2213)    | -215 (159)    | .3357** (.1589)  | -316** (129)  |
| BIOTECH  | .0502 (.1783)    | -347*** (130) | .2247*(.1224)    | -286*** (99)  |
| DEFENCE  | .1273 (.2122)    | -385** (153)  | .3099* (.1854)   | -275* (151)   |
| GAMBLING   | -.0488 (.1948)   | -557*** (141) | .1736* (.1373)   | -428*** (111) |
| OIL  | .0733 (.1774)    | -477*** (129) | .2246* (.1203)   | -338*** (98)  |
| N  | 1000             | 1000          | 1163             | 1163          |
| YEAR DUMMY   | YES              | YES           | YES              | YES           |
| R SQUARED  | .0433            | .7186         | .2187            | .7266         |

To develop a more robust conclusion regarding the concavity between Institutional Ownership Percentage and a firms CSR engagement, I split my data sample into four subgroups: triumvirate (Alcohol, Gambling, and Tobacco industries) firms with above average CSRI scores, triumvirate firms with below average CSRI scores, Controversial (Biotech, Defense, and Oil industries) firms with above CSRI scores, and Controversial firms with below average CSRI scores and regress IOP (the percentage of shares owned by Institutions) against CSRI. The data is split into those four categories to account for an Institutions view on a firms CSR engagement. Earlier, I have demonstrated that institutional investors have similar views to both the triumvirate Sin Stocks and Controversial stocks (both types of firms have lower Institutional Ownership percentages relative to their Comparables), but they may have different views on said firms CSR engagement. Hence, in the next table I present the results CSRI has on Institutional Ownership Percentage for the firms in each of the four subgroups, ceteris paribus.

Table 13 presents the results. No matter the industry grouping, institutional investors respond more positively to a firm’s engagement in CSR if their CSRI score is already above average. This demonstrates that there is no concavity between a firms CSR score and the percent of shares owned by institutional investors. However, this does demonstrate an interesting result, that institutional investors award Sin Stocks, that are already more socially responsible, for being more socially responsible than other Sin Stocks, which are trying to be more socially responsible.

Table 13 presents the panel data regression results of Corporate Social Responsibility Scores (CSRI) on the percentage of shares owned by Institutions (IOP) using data from 2000 to 2016 for a total of 2163 firm year observations. **Panel A** presents the results for all Sin Stocks (firms operating in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco Industries). **Panel B** presents the results for all Triumvirate Stocks (firms operating in the Alcohol, Gambling, and Tobacco Industries). **Panel C** presents the results for all Controversial Stocks (firms operating in the Biotech, Defense, and Oil Industries). Firm year observations with above average CSRI scores are considered in the first columns of each panel set with firm year observations below the CSRI average being considered in the second columns. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

|             | PANEL A: SIN     |                      | PANEL B: TRIUMVIRATE |                   | PANEL C: CONTROVERSIAL |                     |
|-------------|------------------|----------------------|----------------------|-------------------|------------------------|---------------------|
|             | ABOVE            | BELOW                | ABOVE                | BELOW             | ABOVE                  | BELOW               |
| CSRI        | .2530<br>(.1839) | -.6259***<br>(.2177) | 1.2138*<br>(.6809)   | -.6167<br>(.5278) | .3314*<br>(.1954)      | -.5806**<br>(.2347) |
| CONTROL VAR | NO               | NO                   | NO                   | NO                | NO                     | NO                  |
| N           | 1000             | 1163                 | 80                   | 93                | 920                    | 1070                |
| TIME DUMMY  | YES              | YES                  | YES                  | YES               | YES                    | YES                 |
| R-SQUARED   | .0018            | .0422                | .1139                | .1183             | .0031                  | .0493               |

As a last robustness check, I run similar regressions that were run in Table 7 and 8, but for Comparable companies (Food, Soda, Recreation, and Electrical Industries). I do this to further solidify the earlier findings: that the relationship between CSR engagement and Institutional Holdings is different for Sin and Non-Sin Stocks. The results are presented in table 14. The percentage of shares held by institutional investors (IOP) is the dependent variable in the two left-hand columns and the number of institutional investors that have holdings (ION) is the dependent variable on in the two right-hand columns. The Corporate Social Responsibility Index (CSRI) and the Net Corporate Social Responsibility Score (NCSR) are used as the explanatory variables, individually with the control variables remaining unchanged in the models. The results do indicate a positive relationship between CSR engagement and Institutional Holdings for Non-Sin Stocks or Comparables. These results are in line with Waddock & Graves (1994) and Mahoney & Roberts (2007) who find that institutional investors prefer to invest in companies with higher corporate social performance.

Table 14 presents the results of regressions using Comparable Firm data from 2000 to 2016 for 996 firm year observations. The dependent variable on the left-hand side is IOP (the percentage of shares owned by institutional investors) and on the right-hand side is ION (the number of Institutions that have holdings). The Corporate Social Responsibility Index (CSRI) is used as the explanatory variable in Columns 1 and 3. The net Corporate Social Responsibility (NCSR) score is used as the explanatory variable in Columns 2 and 4. Assets, MCAP (Market Capitalization), and Sales are all logarithmically scaled. All explanatory and control variables are measured at t-1 and the dependent variable are measured at t. Industry dummy variable are included and firm years have the value 1 for the corresponding industry the firm belongs to. Their results are excluded for the sake of brevity. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

|                | IOP              | IOP              | ION         | ION          |
|----------------|------------------|------------------|-------------|--------------|
| CSRI           | .2977** (.1376)  |                  | 330 * (169) |              |
| NCSR           |                  | .0055** (.0024)  |             | 6** (2)      |
| ASSETS         | -.0504 (.0326)   | -.0498 (.0326)   | 135** (54)  | 139*** (53)  |
| MARKET CAP     | .0561*** (.0194) | .0556*** (.0194) | 136*** (28) | 133 *** (28) |
| SALES          | .0895*** (.004)  | .0893*** (.0314) | -41 (57)    | -44 (57)     |
| ROA            | .1058*** (.0316) | .1058*** (.0329) | -99 (58)    | -99* (58)    |
| LEV            | -.0026 (.0328)   | -.0023 (.0238)   | 15 (40)     | 16 (40)      |
| N              | 996              | 996              | 996         | 996          |
| INDUSTRY DUMMY | YES              | YES              | YES         | YES          |
| YEAR DUMMY     | YES              | YES              | YES         | YES          |
| R SQUARED      | .1374            | .1376            | .7120       | .7139        |

### Sec 6.2.2: Does Advertising CSR Engagement Help Offset the Negative Stigma Associated with Sin Stocks?

A second defense mechanism that Sin Stocks might engage in to offset the negative stigma is advertise their CSR efforts. The earlier results show that there is an overall negative relationship between the percentage of shares owned by Institutional investors and CSR engagement. However, when the data was divided into firms with above CSR average engagement and firms with below CSR average engagement, it was firms with already above average CSR scores that were gaining higher institutional ownership. The summary statistics in table 5 show that firms with above average Corporate Social Responsibility Index (CSRI) scores have lower advertising intensity than the firms with below CSRI scores opening the possibility that advertising CSR efforts also have a negative effect on the holdings of Sin Stocks. Hence, I go on to examine the part CSR advertising has on institutional ownership.

Table 15 presents a partial excerpt of table 5 (where Summary Statistics are presented) where only averages for a firm's advertising intensity (ADVINT) are shown. The result show that there is a significant difference in advertising means for firms with above and below CSRI scores. Interestingly, it is firms with below average CSRI scores that have higher advertising expenditures

than firms with above average CSRI scores. Although, this presents the adverse effect that advertising intensity may have on Institutional Ownership, no conclusion can be made regarding the relationship between CSR advertising and its effect on the Institutional Ownership of Sin Stocks.

Table 15 presents the average advertising intensity (calculated by scaling advertising expenses against total assets) for firms with above Corporate Social Responsibility Index (CSRI) scores and for firms with below CSRI scores. The results of the t-test are also presented.

|        | Above         | Below         | T-stat |
|--------|---------------|---------------|--------|
| ADVINT | .0214 (.0022) | .0283 (.0042) | -1.55* |
| N      | 295           | 211           | -      |

When looking at table 15, no concrete conclusion can be made regarding the effect CSR advertising has on Institutional Ownership due to the fact the table only addresses a firm’s general advertising expenditure and not CSR related advertising expenditure. Hence, I move on forward with the analysis to determine the role CSR advertising has on Institutional Ownership. To do this, I conduct 2 step panel data regressions where I first determine the predictor variable  $ADVCSR_{i,t}$  by regressing advertising intensity on one year lagged CSRI. Then, I use the predictor variable  $ADVCSR_{i,t}$  to estimate the model of CSR related advertising on the percentage of shares owned by Institutional investors. Table 16 presents the result in three different panel sets. Panel A considers all firm year observations that had advertising expense data. The first column of Panel B considers firm year observations with above average CSRI scores whereas the second column looks at firms with above average advertising intensity.<sup>6</sup> The 2 columns of Panel C consider firm year observations with below average CSRI scores and below average advertising intensity, respectively.

Overall, the results show that there is a negative relationship between CSR advertising and the percentage of shares held by investors. For example, when looking at all the firm observations (Panel A), a percent increase in CSR related advertising expense results in the percentage of equity owned by institutions to go down by 23 percent. Interestingly, CSR advertising for firms with above average CSRI scores (earlier it has been found that CSR engagement by Sin Stocks that

<sup>6</sup> A new CSRI average was calculated with the reduced dataset and used as the benchmark that split firm year observations into above and below a certain characteristic: CSRI score and advertising expense.

have above average CSRI scores has a positive relationship with IOP and that those Sin Stocks have lower advertising intensity) also negatively affect Institutional Ownership (IOP). Lastly, the relationship between CSR advertising and IOP is much more negative for firms with below average CSRI scores and below average advertising intensity. For example, a percent increase in CSR advertising for firms below the sample advertising intensity average (Panel C), results in a 52.2% decrease in Institutional Ownership. These results make sense as CSR advertising may be seen by investors as a squandering of a firm’s financial resources. Oh et al. (2016) find that CSR advertising efforts increase idiosyncratic risk. Hence, institutional investors have a greater incentive to sell some of their equity holdings as a tactic to manage that unwanted risk. Altogether, these results do not fall in line with Naïve Business Theory, which suggests that investors perceive CSR engagement as a noble act undertaken by the firm.

Table 16 presents the results for panel regressions of a Sin firms CSR related advertising on its Institutional Holdings ceteris paribus (firms that operate in Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco) industries. The percent of shares held by Institutions (IOP) is the dependent variable in all models. ADVINTCSRI is the control variable in all models used as a predictor of a firms CSR related advertising. It is derived from regressing advertising intensity (ADVINT) at t against Corporate Social Responsibility score at t-1. **PANEL A** looks at the entire dataset whereas **PANELS B** and **C** split the entire dataset with above or below average indicators. The first columns of **PANEL B** and **C** split the data into firms with above average Corporate Social Responsibility Index (CSRI) scores (**PANEL B**) and below average CSRI scores (**PANEL C**). The second columns of **PANELS B** and **C** split the data into firms with above and below advertising intensity averages, respectively. \*\*\*, \*\*, and \* denote statistical significance at the 1, 5, and 10 percent level, respectively.

*TABLE 16: CSR Related Advertising Intensity on Institutional Ownership*

|                | PANEL A        | PANEL B: ABOVE |                | PANEL C: BELOW |            |
|----------------|----------------|----------------|----------------|----------------|------------|
|                | Entire Dataset | CSRI           | ADVINT         | CSRI           | ADVINT     |
| ADVINTCSRI     | -23.2 (16.1)   | -.7246 (15.7)  | -.7039 (.0301) | -19.5*** (7)   | -52.2 (37) |
| INDUSTRY DUMMY | YES            | YES            | YES            | YES            | YES        |
| TIME DUMMY     | YES            | YES            | YES            | YES            | YES        |
| N              | 506            | 295            | 135            | 211            | 371        |
| R-SQUARED      | .1547          | .1349          | .3402          | .2473          | .1679      |

## SECTION 7: DISCUSSION

The overall aim of this paper was to examine whether engaging in CSR is an effective tactic in offsetting the negative stigma that surrounds the firms that operate in the Alcohol, Biotech, Defense, Gambling, Oil, and Tobacco industries. Firms that operate in those industries have a lower percentage of shares that are held by institutional investors; thereby, indicating that lower institutional ownership can be a direct result of the negative stigma surrounding those firms. If

CSR engagement did result in higher institutional ownership, then using CSR as a tactic to offset that negative stigma would be an effective way in doing so. The results show otherwise.

The results indicate that CSR is an ineffective method in offsetting the negative stigma surrounding the firms. It seems that CSR exacerbates that negative stigma as almost every coefficient measuring the relationship between Institutional Ownership and CSR engagement is negative, and in some cases statistically significant (Tables 8 and 9). Cai, Jo, and Pan (2011) find that CSR engagement of firms in the Sin Industries positively affects firm value. The results show that Institutional investors do not see CSR engagement by firms in the Sin Industries as value enhancing initiatives but instead view them as a tactic in trying to appear good. This is more evident when comparing how Institutional investors respond to CSR engagements by firms in the Sin Industries with firms in the Comparable industries. The percentage of shares owned by institutions goes up and the number of investors that have holdings goes up for firms in the Comparable industries when they engage in Corporate Social Responsibility. This ultimately presents a paradox as Investors respond in a positive manner (increasing Institutional Holdings) to CSR engagement only to firms in certain industries. The nature of the paradox can be explained by the fact that the institutional investors that own the shares of sin stocks are not or are less constrained by Social Norms; hence, disregard the negative stigma that is associated with Sin Stocks. However, these Institutional investors (as shareholders) may not trust the intentions of the Sin Stock's CSR engagement and sell some of their shares due to the initiative being incongruent with the overall business operations. It is evident that Sin Stock CSR engagement causes a great mistrust between shareholders and management considering that Ye Cai, Hoje Jo, and Carrie Pan (2011) find that company managers of Sin Firms operating in the United States consider CSR an important factor on business strategies and not as a tactic to deceive stakeholders. This falls in line with the points of Palazzo and Richter (2005) who argue that engagement of CSR by Sin Firms forms a deep distrust between shareholders and the company.

The negative relationship between CSR related advertising and Institutional Ownership further shows that anything related to CSR is negatively viewed by shareholders. This again falls in line with the argument presented by Palazzo and Richter (2005) that shareholders do not trust the intentions of CSR engagement by Sin Firms. This makes sense since CSR engagement already forms a distrust between shareholders and management, so advertising CSR would only enhance

the mistrust between the parties. Instead of drawing in more investments, CSR engagement and CSR related advertising drives away investment from Sin Stocks showing that CSR does not help offset the Social Norms Effect.

Interestingly, Sin Stocks with above average CSR performance have a statistically significant higher percentage of their equity owned by Institutional investors, a statistically significant higher number of Institutions that have holdings in them, and a statistically significant higher Market Capitalization than firms with below average CSR performance (see Table 5). These firms (with above average CSR performance) are the only set of firms that do offset the negative stigma that is associated with Sin Stocks since there is a positive relationship between CSR engagement and Institutional Ownership (see Table 12). Although this is contradictory to my overall findings, there may be an explanation for it. The Institutions that have holdings in these firms pressure those firms to engage in CSR to perform better financially given that the firms that engage in below average CSR have higher sales, higher amount of assets, and higher Return on Assets. Social Norms are irrelevant in this case since firms with above average CSR already have significantly higher institutional holdings. Dyck et al (2019) find that Institutional investors do drive firm level CSR commitments, so it is possible that Institutional investors pressure Sin Stocks to engage in more CSR given that CSR engagement offers many financial benefits such as reputation enhancement (Turban and Greening 1997), stronger levels of customer loyalty (Maignan et al. 1999), and the freedom to charge higher prices for products (Bhattacharya and Sen 2004). Determining whether Sin Stocks engage in CSR because they are encouraged by their investors to do so is an area for future research.

The results presented should be interpreted knowing some limiting caveats of the KLD database. First, the KLD data is subject to sample selection bias as it is based on a small group of companies' CSR ratings presented by KLD analysts. Furthermore, the assigned CSR ratings given by the KLD analysts are qualitative in nature, so any idiosyncratic information regarding a company' CSR activities may be lost.

Another limitation of my analysis is the time sample studied. Between the years 2000 and 2016 there were two asset bubbles that burst: The Dotcom Bubble and The Housing Bubble. These two stock market crashes could potentially offset my results as they are exogenous factors that are not considered in the models. Although I did control for time trends, there is a possibility that the

time sample used in the analysis is too small given that almost one eighth (12.5%) of my firm year observations are during a stock market crash. These exogenous factors could potentially be driving investment into Sin Stocks as they are recession proof or be driving overall investment away from stocks and into other asset classes during or after the crash, which ultimately may affect my analysis. Ultimately, it is unknown whether there is a transfer of shares from institutions to individual investors or vice versa, or even from institutional investors to other institutional investors. However, there is likely to be erratic behaviour shared among all types of investors during the stock crashes which could result in unpredictable transfer of shares to and from different parties, which could potentially affect the ownership of Sin Stocks during these time periods.

### Sec 7.2: Areas for Future Research

This paper assesses a company's CSR engagement by using data provided by the KLD database. There are other databases that also provide company CSR data such as Thomson Reuters Asset 4 Platform and Bloomberg, but most of the academic literature cites the KLD ratings data as the main source for CSR data that is used in empirical analyses (Kotchen & Moon, 2012). Although, there are distinctions between each of the databases, they all share a significant similarity. The CSR ratings provided by the Institutions are qualitative in nature, meaning that ultimately a company's CSR effort is scored (not measured) by a human. Considering that CSR is a multidimensional construct, with social responsibility encompassing many factors such as pollution control, treatment of employees, and relationships with customers and the community spread across Environmental, Social, and Governance factors, opens the possibility of human error and bias on when assessing a company's CSR engagement. Furthermore, there is no one way in scoring a company's CSR engagement, which may already be inaccurate, as different CSR related literature evaluates CSR in a different manner. These factors can pave the way for many different or even contradictory results among academic studies. Future research regarding CSR should primarily focus on quantifying Corporate Social Responsibility. This means that CSR components could be found listed as expenses on a company's financial statements. Knowing how much a company spends on Corporate Social Responsibility would be of great interest to investors, academics, and regulators as investors and regulators would see how much money is spent on CSR activities and academics would have a more accurate way of measuring CSR and have a more practical way of incorporating CSR engagement metrics in their analyses.

Another area for future research could be to study the implications of the Social Norms Effect. Firstly, this means to research how specific type of Institutional investors (Banks, Mutual Funds, Hedge Funds, Pension Funds) react to CSR engagement of Sin Stocks. Hong & Kacperczyk (2009) find that Institutions that are less constrained by Social Norms (Hedge Funds and Mutual Funds) have a greater equity stake in the companies. As a follow up to my research, studying how different institutions react to CSR could contribute to the work in the behavioural finance field as it would provide more in-depth insight into whether the Social Norm Effect affects investing decisions. Secondly, studying the implications of the Social Norms Effect means testing whether it applies to firms with low CSR scores (low Corporate Social Performance). There is the possibility that there are firms that do not or barely engage in Corporate Social Responsibility. Investigating whether not investing in companies that do not engage in CSR falls within the scope of Social Responsible Investing would provide insight on the significance CSR has on investing decisions; thus, contributing to behavioural finance literature. Lastly, another area for research could be to examine the effect CSR has on the volatility of Sin Stocks as it could shed even more light on how investors (people, small and large institutions) view CSR engagement of Sin Stocks.

A small caveat of my analysis is that it strictly focuses only on the American market. People in different societies have different values. This could translate to Institutional investors domiciled in different countries to have different views on Sin Stocks. Hence, an interesting follow up to this paper would be to examine which countries host institutions that have the greatest ownership of Sin Stocks. Considering, that there are Investors that are domiciled in different countries that also invest in American firms and vice versa, an interesting concept to research would be to test whether Institutions that are domiciled in one market (ex. USA) invest more in local Sin Stocks (firms in the US) or foreign firms (firms outside the US). Research that focuses on studying which firms in which countries focus on CSR the most could also be interesting as it would provide cultural, economic, and social insight of the studied countries.

## SECTION 8: CONCLUSION

CSR engagement of firms in all industries is a topic that is extensively studied by academics and is of great interest to company shareholders, regulators, and academic researchers. This paper bridges the gap between Sin Stocks performance in the financial markets and the impact Sin Stock CSR activities have on firm value by examining how Institutional investors perceive Sin

Stock CSR engagement. Hong and Kacperczyk (2009) find that although the Triumvirate Sin Stocks outperform their Comparables they are less held by Institutional investors due to Social Norms while Cai et al. (2011) find that CSR engagement positively affects the value of companies operating in the Alcohol, Tobacco, Gambling, Defense, Biotech, Cement, and Oil industries. Hence, this paper focuses on answering the question whether CSR activities help Sin Stocks increase their Institutional Ownership (offset the negative stigma) given that CSR increases firm value and that Sin Stocks already outperform their Comparables in the financial markets.

In this paper, I claim that firms that operate in the sin industries engage in CSR as a strategy to increase their Institutional Ownership. Using a comprehensive sample of US Sin Stocks from the years 2000 to 2016 I examine the impact that CSR activities have on their Institutional Ownership. First, I find that there is no significant difference in Ownership means of firms that operate in the triumvirate sin industries (Alcohol, Gambling, and Tobacco) and controversial industries (Biotech, Defense, and Oil) suggesting that institutional investors view firms that operate in all those industries as sinful. Secondly, I find that CSR engagement does not offset the negative stigma that is associated with firms that operate in the sin industries, except for companies that already engage in above average CSR. Thirdly, I find that Institutions view Sin Stock CSR activities similarly across the two industry groupings (Triumvirate Sin and Controversial). Lastly, I find that advertising CSR also does not offset the negative stigma surrounding Sin Stocks. In summary, engaging in CSR is an ineffective strategy for Sin Stocks in receiving more positive views from institutional investors.

## APPENDIX A: SIC Codes for Comparable Industries

| <b>Fama &amp; French Industry Classification Table for Comparable Firms</b> |                 |  |
|---|-----------------|--|
| <b>Industry</b>   | <b>SIC Code</b> | <b>Product</b>                               |
| Food  | 2000-2009       | Food and Kindred Products                    |
|   | 2010-2019       | Meat Products                                |
|   | 2020-2029       | Dairy Products                               |
|   | 2030-2039       | Canned Goods                                 |
|   | 2040-2046       | Flour and other Grains                       |
|   | 2050-2059       | Bakery Products                              |
|   | 2060-2063       | Sugar  |
|   | 2070-2079       | Fats & Oils                                  |
|   | 2090-2092       | Miscellaneous Food Preps                     |
|   | 2095-2095       | Roasted Coffee                               |
|   | 2098-2099       | Miscellaneous Food Preparations              |
| Soda  | 2064-2068       | Candy  |
|   | 2086-2086       | Soft Drinks                                  |
|   | 2087-2087       | Flavoring Syrup                              |
|   | 2096-2096       | Potato Chips                                 |
| Recreation  | 0920-0999       | Fishing, Hunting & Trapping                  |
|   | 3930-3931       | Musical Instruments                          |
|   | 3940-3949       | Toys   |
|   | 7830-7833       | Motion Picture Theatres                      |
|   | 7940-7949       | Professional Sports                          |
|   | 7980-7980       | Amusement and Recreation                     |
| Electrical  | 3600-3600       | Electrical Machine Equipment & Supply        |
|   | 3610-3613       | Electrical Transmission                      |
|   | 3620-3629       | Electrical Industrial Apparel                |
|   | 3640-3644       | Electric lighting, wiring                    |
|   | 3645-3645       | Residential lighting fixtures                |
|   | 3646-3646       | Commercial lighting                          |
|   | 3648-3649       | Lighting equipment                           |
|   | 3660-3660       | Communication equip                          |
|   | 3690-3690       | Miscellaneous electrical machinery and equip |
|   | 3691-3692       | Storage batteries                            |
|   | 3699-3699       | Electrical machinery and equip               |

The data presented in this table is taken from Fama & French's Industry Definition table, which is available for the public to view.

## APPENDIX B: SIC/NAICS Codes for Sin Industries

| <b>Fama &amp; French Industry Classification Table for Sin Firms</b> |                       |   |
|--|-----------------------|---|
| <b>Industry</b>  | <b>SIC/NAICS Code</b> | <b>Product</b>                          |
| Alcohol  | 2080-2080             | Beverages                               |
|  | 2082-2082             | Malt beverages                          |
|  | 2083-2083             | Malt                                    |
|  | 2084-2084             | Wine                                    |
|  | 2085-2085             | Distilled and blended liquors           |
| Gambling   | 7132                  | Gambling                                |
|  | 71312                 | Gambling                                |
|  | 713120                | Gambling                                |
|  | 71329                 | Gambling                                |
|  | 72112                 | Gambling                                |
|  | 721120                | Gambling                                |
| Tobacco  | 2100-2199             | Tobacco Products                        |
| Biotech  | 2833-2833             | Medicinal Chemicals                     |
|  | 2834-2834             | Pharmaceutical Preparations             |
|  | 2835-2835             | In Vitro, In Vivo Diagnostics           |
|  | 2836-2836             | Biological Products, Except Diagnostics |
| Defense  | 3760-3769             | Guided Missiles and Space Vehicles      |
|  | 3795-3795             | Tanks and Tank Components               |
|  | 3480-3489             | Ordnance & accessories                  |
| Oil  | 1300-1300             | Oil and Gas Extraction                  |
|  | 1310-1319             | Crude Petroleum & Natural Gas           |
|  | 1320-1329             | Natural Gas Liquids                     |
|  | 1330-1339             | Petroleum and Natural Gas               |
|  | 1370-1379             | Petroleum and Natural Gas               |
|  | 1380-1380             | Oil and Gas Field Services              |
|  | 1381-1381             | Drilling Oil & Gas Wells                |
|  | 1382-1382             | Oil-Gas Field Exploration               |
|  | 1389-1389             | Oil and Gas Field Services              |
|  | 2900-2912             | Petroleum Refining                      |
|  | 2990-2999             | Misc Petroleum Products                 |

The data presented in this table is taken from Fama & French's Industry Definition table, which is available for the public to view.

## APPENDIX C: CSR Criteria Used in Calculating CSRI

| <b><u>KLD Inclusive Social Ratings</u></b> |  |  |
|--|--|--|
| <b><u>Category</u></b>                     | <b><u>Strength Item</u></b>  | <b><u>Concern Item</u></b>   |
| Community                                  | Generous Giving<br>Innovative Giving<br>Support for Housing<br>Support for Education<br>Non-US Charitable Giving<br>Other Strengths                              | Investment Controversies<br>Negative Econ. Impact<br>Other Concerns  |
| Environment                                | Beneficial Product and Services<br>Pollution Prevention<br>Recycling<br>Alternative Fuels<br>Other Strengths   | Hazardous Waste<br>Regulatory Problems<br>Ozone Depleting Chemicals<br>Substantial Emissions<br>Agricultural Chemicals<br>Climate Change<br>Other Concerns |
| Diversity                                  | CEO<br>Promotion<br>Board of Directors<br>Family Benefits<br>Women/Minority Contracting<br>Employment of the Disabled<br>Progressive Policies<br>Other Strengths | Controversies<br>Non-representation<br>Other Concern   |
| Employee Relations                         | Strong Union Relations<br>Cash Profit Sharing<br>Employee Involvement<br>Strong Retirement Benefits<br>Health and Safety<br>Other Strengths                      | Poor Union Relations<br>Health and Safety<br>Workforce Reduction<br>Pension Benefits<br>Other Concerns   |
| Product                                    | Quality<br>R & D Innovation<br>Benefits to Economically Disadvantaged<br>Other Strengths   | Product Safety<br>Marketing Controversy<br>Antitrust<br>Other Concerns   |

## APPENDIX D: Calculation of the CSR Index (CSRI)

COMMUNITY(i,t) = ((sum of all community strength items for firm i at year t minus the sum of all community concern items for firm i at year t plus total maximum possible number community concern items at year t) divided by (total maximum possible number of community strength items during year plus total maximum possible number of community concern items at year t)

ENVIRONMENT(i,t) = (sum of all environment strength items for firm i at year t minus the sum of all environment concern items for firm i at year t plus total maximum possible number of environment concern items at year t) divided by (total maximum possible number of environment strength items during year plus total maximum possible number of environment concern items at year t)

DIVERSITY(i,t) = (sum of all diversity strength items for firm i at year t minus the sum of all diversity concern items for firm i at year t plus total maximum possible number of diversity concern items at year t) divided by (total maximum possible number of diversity strength items during year plus total maximum possible number of diversity concern items at year t)

EMPLOYEE RELATIONS(i,t) = (sum of all employee strength items for firm i at year t minus the sum of all employee concern items for firm i at year t plus total maximum possible number of employee concern items at year t) divided by (total maximum possible number of employee strength items during year plus total maximum possible number of employee concern items at year t)

PRODUCT(i,t) = (sum of all product strength items for firm i at year t minus the sum of all product concern items for firm i at year t plus total maximum possible number of product concern items at year t) divided by (total maximum possible number of product strength items during year plus total maximum possible number of product concern items at year t)

CSR Index = (COMMUNITY+ENVIRONMENT+DIVERSITY+EMPLOYEE+PRODUCT)/5

Note: The calculation is following Hillman and Keim (2001), Baron et al. (2011) and Cai et.al (2011)

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