

Is Sin Always a Sin? The Interaction Effect of Social Norms and Financial Incentives on Market Participants' Behavior

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ABSTRACT

Using alcohol, tobacco, and gaming consumption data and people's attitudes toward these sin products to proxy for the social norm acceptance level, we show a strong interaction effect between social norms and financial incentives, which significantly influence the decisions of investment professionals and managers of these sin companies. Specifically, institutional investors' shareholdings and analyst coverage of sin companies increase with the degree of social norm acceptance. The association between shareholdings/coverage and social norm acceptance is less pronounced for firms with higher future expected performance. In addition, managers' opportunistic behavior, proxied by discretionary accruals and analyst meet-or-beat frequencies, is related negatively to the extent of social norm acceptance; and such an association is less pronounced for firms with higher financial performance. Our results show that social norms and financial incentives have a powerful interaction effect in determining the behavior of market participants, suggesting that social norms can be crossed when motive and opportunity exist.

JEL Classification: G11, D71, M40.

Keywords: Social norms, financial incentives, sin stocks.

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I. INTRODUCTION

Debate over the trade-off between private and social value of economic activities has continued for at least one hundred years. This debate reached a turning point recently when people began to re-think the ultimate objectives of economic agents and regulations (Pigou 2005, Cassidy 2009). Extant literature shows that most economic agents maximize short-term profits, but also suggests that socially responsible investors care about non-financial incentives. These non-financial incentives provide externalities to society as a whole. During periods of financial crisis such as the past three years, however, the public has voiced their strong interest in knowing whether the social value of economic activities are sacrificed due to the incentives of market participants chasing financial rewards. In contrast to demand for such evidence, to date very few empirical studies directly address how financial incentives interact with social norms in determining the behavior of economic agents in various settings. Motivated by the interests of both regulators and academics, in this paper we take advantage of sin firms (stocks in alcohol, tobacco and gaming industries), which have social norms attached to their products, to examine whether social norms and financial incentives have a substitution effect in influencing the behavior of market participants. In other words, we explore whether “money talks” when market participants have the dilemma of choosing between social norms and financial rewards.

Financial and non-financial incentives sometimes do not align themselves. Historical evidence suggests market participants can gain higher financial rewards, on average, by violating socially responsible investing philosophy and investing in sin stocks. When financial rewards are

too enticing, whether market participants will still adhere to social norms becomes a question. In this paper we explore whether and to what extent market participants compromise social norm boundaries when making decisions on sin stocks. Sin stocks are our focus because they are most likely to be subject to social norm constraints due to their undesirable social consequences when consumed excessively and because of their highly addictive properties. We examine the following market participants and their actions: 1) institutions and their stock ownership decisions, 2) financial analysts and their coverage decisions, and 3) managers of sin firms and their discretionary earnings management decisions.

Hong and Kacperczyk (2009) suggest social norms are priced and show that stocks in alcohol, tobacco and gaming industries (*sin stocks*) on average have less institutional ownership and analyst coverage compared to other non-sin stocks. Kim and Venkatachalam (2010) find that the financial reporting quality of sin firms is better than other firms along two dimensions: predictability of earnings for future cash flows and timely loss recognition. Different from their studies, we investigate the interaction effect of social norms (toward these vices) and financial performance incentives. We show that institutional ownership, analyst coverage, and management actions are not unconditional: that is, they depend upon the trade-off between social norm compliance and profit motive. In our analysis, we use the consumption of alcohol, tobacco, and gaming and people's attitudes toward these sin products to proxy for the level of social norms. Such a treatment captures the time-varying level of social norms and the dynamic nature of the relative financial performance of sin stocks. In particular, it incorporates the differential social norm evolution processes for alcohol versus tobacco versus gaming activities and also avoids the problems of identifying an appropriate control group as each firm is now treated as its own perfect control.

Our evidence from both univariate and multivariate analyses suggests a strong interaction effect between social norms and financial incentives of market participants. When a stock is expected to perform poorly, the price of obeying social norms is relatively cheap, leading to additional shunning by institutions and analysts. However, when the stock is expected to perform well, the relative price of obeying social norms becomes high, leading to the dilemma of choosing between social responsibility and financial rewards. Regardless of expected financial performance, sin stocks are shunned more when social norm acceptance is low (consumption of sin products is low). Such calibration extends the finding in Hong and Kacperczyk (2009) that sin stocks, compared to the wide universe of stocks, are held less by institutions and followed less by financial analysts. In addition, we find that managers of sin firms respond to the joint effect of social norms and financial performance. Managers become more aggressive in years when social acceptance levels are low and financial performance is poor as in these years institutional investors and analysts shy away from these stocks. We measure aggressiveness using income-increasing accruals and the likelihood of meeting or beating analyst earnings expectations.

As alluded to above, we add a level of richness to the previous literature by investigating how social norms evolve over time through the adoption of social norm proxies. The consumption of alcohol, tobacco, and gaming, are correlated highly with people's attitude toward these sin products. These proxies enable us to track the different evolution processes of the three sins. For example, social norm acceptance levels for alcohol and tobacco have become lower over time while acceptance levels for gaming have increased. We focus on institutional investors who are usually marginal investors in the capital markets and as such are subject to close public scrutiny. Individual investors are not our focus because in contrast to institutional investors, individual investors can keep their stock positions out of the view of social norm enforcers and as such,

individual investors are likely to be more willing than institutional investors to hold sin stocks. We examine analyst coverage as less demand for information by institutional investors may lead to less analyst coverage (O'Brien and Bhushan 1990). We also examine the aggressiveness of managers of sin companies in response to time-varying institutional holdings and analyst coverage.

Our study contributes to both the economics and accounting literature. First, we provide strong empirical support for a substitution effect between financial and non-financial incentives among economic agents. We show that when social norms interact with financial considerations, market participants will sacrifice their adherence to social norms for financial rewards. While such a finding sounds intuitive, the empirical evidence is scarce in the literature. This finding adds to the current debate on why there could be a gap between the investment practices of Wall Street and the ethical standards of Main Street.¹ It is thus of particular interest to academics, investors, regulators, and various other stakeholders. Second, our research design and findings highlight the importance of having direct empirical measures of social norms. Our use of changes in consumption of sin products as a proxy for the evolution of social norms towards sin stocks overcomes the drawback of assuming a constant social norms level over time; and it extends previous studies by showing how social norms are priced in a dynamic setting. We are also able to document a distinct evolutionary process of social norms related to different sin products. Thus, our results potentially shed light on why social norm effects are found to be weak, in aggregate, for certain periods in the previous literature. Based on these direct social norm

¹ While ethical standards are consistent with corporate social responsibility considerations, they are not necessarily profitable to follow. As such, a disconnect can form between what is right to do (following ethical standards) versus what is profitable to do (investment practices).

measures, our findings strengthen the inferences made in several recent studies which examine the relation between religion and financial reporting quality (Dyreng, Mayew, and Williams 2010; McGuire, Omer, and Sharp 2010). In these studies, social norms are indirectly proxied by an indicator of whether firms are headquartered in religious areas.

Our findings have significant implications and importance in practice, especially in view of the aftermath of the recent financial crisis in which numerous individuals and companies have been accused of sacrificing social standards for financial gain. Extending our hypotheses to a more general context, one may predict that when one's existing social norms are interacted with a strong counteracting force, i.e. financial considerations, a real risk exists that these "compromises" become part of acceptable future social norms. This risk is substantiated by the work of Prentice and Miller (1996). They concluded that individuals recognize when their norm-congruent behavior is at variance with their true sentiments, but do not assume a similar discrepancy in others. Instead, their social perception is guided by what they observe; namely, they infer that the actions of others accurately reflect what others are thinking and feeling. Compromising social norms for financial rewards, if accepted as a new norm, would be a real threat to our society.

II. BACKGROUND AND HYPOTHESES

Social norms are rules and standards understood by members of a group that guide and constrain social behavior. More precisely, there are two types of social norms: descriptive norms and injunctive norms. Descriptive norms refer to the prevalence of a given behavior (i.e. how many people in a given population smoke cigarettes?) whereas injunctive norms refer to the degree of actual or perceived approval of a given behavior (Neighbors et al. 2007). Descriptive and injunctive norms should be highly correlated because a popular behavior implies that many

people approve of the behavior. These social norms develop as a result of interaction with others. Sanctions for deviating from them come from social networks as opposed to the legal system (e.g. Cialdini and Trost 1998). In the economics literature, the impact of social norms on economic behavior and market outcomes was first studied in the context of the labor market. In the discrimination model of Becker (1957), agents (e.g., employers) pay for the discretionary tastes arising from community norms. They bear financial costs from their decisions to not enter into contracts with (hire) particular types of people. In an unemployment setting, Akerlof (1980) examined social norms and claimed that although social norms can be costly, they continue to exist because of the perceived loss of reputation to followers for diverting from these norms.

Applied to socially responsible investing (SRI), it is generally understood that SRI encourages investors to avoid sin companies such as those companies involved in the production of alcohol, tobacco, and gaming. It is believed that investors with a socially responsible investing philosophy can somehow affect the practices of the firms in which they invest and thus improve “the efficiency of the economic system (in the broad sense of satisfaction of individual values)” (Elster 1989). As a result, shares of sin stocks should be held in smaller proportions by institutions subject to social norm pressures (e.g., loss of reputation) or with socially responsible investing objectives (Geczy, Stambaugh and Levin 2005). Moreover, since sell-side analysts who produce financial reports and analyses on companies tend to cater to institutional investors, sin stocks should also be followed less by analysts (Hong and Kacperczyk 2009).

Previous literature, through its use of a dummy variable to proxy for “sin”, implicitly assumes that strong social norms against sin stocks are constant over time and across different sin types. However, as documented by the sociology and economics literature, through a process of adaptation, social norms are not constant. Rather, they evolve over time in several different

dimensions, including age groups, social classes, and social groups (Ostrom 2000; Azar 2004; Kolstad 2007). To overcome this drawback, our study uses consumption data for sin products or services to proxy for the level of social norms in both cross-section and across time. The use of consumption data to proxy for social norms is consistent with the definition of descriptive norms and the proxies are highly correlated with injunctive norms, as we show later. In addition to raw consumption being the definition of a descriptive norm, previous literature has shown, for example, that injunctive social norms are strong predictors of gambling behavior (i.e. descriptive norms) and gambling-related negative consequences (Larimer and Neighbors 2003; Moore and Ohtsuka 1997; Moore and Ohtsuka 1999; Takushi et al. 2004). Our choice of consumption data relies on the assertion that the undesirable social consequences of alcohol, tobacco, and gaming, when consumed excessively, reflect the consensus social norms against consuming these products. Indeed, we find that whereas social norms against gaming have moderated significantly over the period of 1980 to 2007, the opposite can be said about alcohol and tobacco usage. Such new direct proxies allow us to conduct our study within each sin industry, avoiding the difficulty in choosing the appropriate control group as in the previous literature.

Consistent with our support for the evolution of social norms, we argue that institutions and analysts have a lower demand for sin companies when social norms against the “sin” are stronger. Hong and Kacperczyk (2009) provide evidence that, on average, institutional ownership and analyst coverage are lower for sin companies than for non-sin companies in their full sample period. However, in several sub-periods, such a difference is not significant.² Our

² For example, see Panel D of Table 3 in Hong and Kacperczyk (2009).

argument potentially sheds light on the reason: at the time when social norms are weak in aggregate, it is possible that sin is not priced. We thus have the following hypotheses:

Hypothesis 1A: Institutional ownership of sin stocks is associated positively with the strength of social norm acceptance.

Hypothesis 1B: Analyst coverage of sin stocks is associated positively with the strength of social norm acceptance.

Previous studies on sin stocks assume implicitly that the effect of social norms is unconditional, i.e., it is independent of the firm's financial performance. Extant studies document that institutional ownership and analyst coverage have a strong positive correlation with financial performance (McNichols and O'Brien 1997; O'Brien and Bhushan 1990; Sias, Starks and Titman 2006; Cai and Zheng 2004). Specifically, institutional investors invest when expected stock returns are high (e.g., Griffin, Harris and Topaloglu 2003; Cai and Zheng 2004) and analysts are more likely to provide forecasts and recommendations for stocks about which their true expectations are favorable (McNichols and O'Brien 1997). Akerlof (1980) develops a model expressing utility as a function of consumption, reputation, obedience/disobedience of community's code of behavior, and belief/disbelief in code of behavior. He finds that a custom that is too costly to follow, in terms of lost utility, will not be followed; while a custom that is fairly costless to follow will, once established, continue to be followed because persons lose utility directly by disobeying the underlying social code and also because disobedience of social custom results in loss of reputation. Applied to sin stocks, social norms against investing in these stocks are relatively easy to follow when the financial performance of alternative investments are strong. However, when the financial performance of all other stocks are falling relative to stocks

that promote vice, as was the case in the early 2000s, this custom of not holding sin stocks becomes prohibitively expensive to follow and will not always be followed.

As the preceding studies suggest, market participants face a strong tension between pursuing financial rewards and adhering to social responsibilities. When financial rewards are too enticing, institutions and financial analysts are likely to take a pass on social norms. Therefore, when considering the effects of social norms on investors' investment decisions and market participants' behaviors, financial incentives should not be neglected. These arguments lead to the following hypotheses, where we include financial incentives and hypothesize that the impact of sin varies with the relative expected financial performance of sin stocks.

Hypothesis 2A: When expected financial performance of sin companies is strong, institutional ownership of sin stocks is less likely to be associated with the level of social norms.

Hypothesis 2B: When expected financial performance of sin companies is strong, analyst coverage of sin stocks is less likely to be associated with the level of social norms.

While several studies have examined the relationship between social norms and financial market outcomes, the impact of social norms on manager's behavior has been largely underexplored. Kim and Venkatachalam (2010) find that sin firms' financial reporting quality is superior to a control group along two dimensions: predictability of earnings for future cash flows, and timely loss recognition. Their study concludes that, despite superior returns and higher financial reporting quality, investors are willing to bear a financial cost in order to comply with societal norms by neglecting sin stocks. While their paper finds a positive relationship between management opportunistic behavior and the sin versus non-sin stock dummy variable, their study masks the effect of the dynamic change of social norms. Exploring the rationale for sin stock conservatism, Hong and Kacperczyk (2009) refer to a MoneySense article which states that sin

stocks tend to benefit from very conservative accounting because sin industries fall under considerable scrutiny from regulators. Dyreng et al. (2009) also discuss the impact of social norms on financial reporting for publicly traded firms. However, rather than use a sin stock context, they use the extent of religious adherence in the area in which the firm is headquartered. They find that religious social norms are related negatively with financial reporting aggressiveness. McGuire et al. (2010) draw a similar conclusion that the association between religiosity and abnormal accruals is negative. However, their study finds that the managers of firms in religious areas may prefer real earnings management. Finally, Callen et al. (2010), using a small cross-country data set, find that earnings management is unrelated to religious affiliation and the degree of religiosity. Rather, earnings management is related negatively to the cultural variable of individualism and related positively to uncertainty avoidance.

Different from these papers, we relax the assumption that management's incentives to manipulate earnings do not vary. To explore this avenue, we focus only on sin firms and use each sin stock firm as its own control. We expect managers engage in both accruals and expectations management in response to the dynamic change of social norms. When social norm acceptance levels are high, sin firms appear to be little differentiated from their non-sin firm peers (i.e., investors are less constrained by investing in sin stocks). Therefore, management does not have to manipulate earnings to attract investor attention and obtain reasonable costs of capital. However, when social norm acceptance levels are low, sin firms are at a competitive disadvantage. Aware of this discrimination against sin, managers of sin companies will manage earnings and analyst expectations to compensate for the cost imposed by sin. In addition, managers may be affected by social norms directly. Booth and Schulz (2004) show that a strong

ethical environment will be effective in reducing the tendency for managers to continue failing projects. The above discussion leads us to propose the following hypotheses:

Hypothesis 1C: Management's opportunistic behavior, as proxied by the extent of discretionary accruals, is associated negatively with the strength of social norm acceptance.

Hypothesis 1D: Management's opportunistic behavior, as proxied by the number of meet/beat earnings expectations in a given year, is associated negatively with the strength of social norm acceptance.

Management manipulates earnings for different reasons, including manager/shareholder conflicts of interest related to compensation, insider trading, turnover, and management buyouts (Ronen and Yaari 2008). In general, the extant literature confirms that weak financial performance provides incentives for earnings management. For example, Balsam, Haw and Lilien (1995) show that firms use discretion to time the adoption of income increasing accounting methods when the firm's change in ROA is the lowest. DeFond and Park (1997) document income smoothing where firms manage earnings downward (upward) when current unmanaged performance is good (poor) and when expected future performance is weak (strong). Taken together, aware of the impact of reported earnings on share price, managers with different earnings management incentives will manage earnings to maximize their compensation. When firms' current market performance is good, suggesting that the market holds a positive belief in firms' future profitability, managers will likely have less incentive to manipulate earnings upward to boost the value of their options; while the opposite holds true when firms perform badly. Taking financial incentives into account, we propose the following hypotheses:

Hypothesis 2C: When actual financial performance of sin companies is strong, management's opportunistic behavior, as proxied by the extent of discretionary accruals, is less likely to be associated with the level of social norms.

Hypothesis 2D: When actual financial performance of sin companies is strong, management's opportunistic behavior, as proxied by the number of meet/beat earnings expectations in a given year, is less likely to be associated with the level of social norms.

III. SAMPLE SELECTION AND VARIABLES

3.1 Sample Selection

Following Hong and Kacperczyk (2009), we identify a list of sin firms that are publicly traded and are involved in the alcohol, tobacco, and gaming industries.³ We start with the Fama and French (1997) classification of stocks based upon their SIC codes into 48 industries. Stocks in the Fama-French industry group 4 (beer and alcohol – SIC codes 2100-2199) and industry group 5 (smoke or tobacco – SIC codes 2080 – 2085) are classified as sin stocks. Firms with NAICS codes: 7132, 71312, 713210, 71329, 713290, 72112 and 721120 are identified as gaming stocks. In addition, we use Compustat Segments data to include firms that have segments operating in any of these SIC or NAICS groups. A company is identified as a sin stock if any of its segments has an SIC code in either the beer or the smoke group or an NAICS code in the gaming group. Since segments data are only available after 1985, our augmented search using Compustat Segments data is limited to stocks still in existence as of 1985. For these stocks, those identified as sinful are characterized as sinful for their entire history.

³ Hong and Kacperczyk (2009) dataset is available up to 2003. We thank them for the use of their data set to verify our classification.

We obtain daily closing stock prices, daily shares outstanding and all other return-related data from CRSP. Annual information on a variety of accounting variables is obtained from Compustat. We restrict our study to companies with CRSP share codes of 10 and 11. Institutional ownership data is from Thomson Reuters' database of 13-F filings, including institutions that manage at least \$100 million in assets. Analyst coverage data is obtained from IBES. Since institutional ownership and analyst coverage data only became available after 1980 and 1975 respectively, we restrict our analysis to the period commencing from 1980. GDP and unemployment data are obtained from the websites of the World Bank and the US Bureau of Labor Statistics respectively.

Unique to our paper is the construction of a social norm proxy for each of alcohol, tobacco, and gaming industries over time. Each proxy is based on per capita consumption data obtained from several different sources. Alcohol statistics are obtained from the National Institute on Alcohol Abuse and Alcoholism. Tobacco data is obtained from the United States Department of Agriculture. Gaming data, based on visitor volume to Las Vegas as % of total US population, is obtained from the Las Vegas Convention and Visitors Authority.⁴

3.2 Variables

3.2.1 Measures of Social Norms

Berkowitz (2004), in a review paper of the social norm approach to changing undesirable social norms, argues that actual drinking/gambling/smoking behavior (i.e. consumption levels)

⁴ See Table 1 for the details of the sources. One might argue that the use of Las Vegas visitor volume is not an optimal measure (i.e., it does not consider % of visitors who are foreigners and it assumes implicitly that casinos are the only gaming option available). However, this is the only measure available over such an extensive period of time. Data for average number of annual trips to casinos per US gambler, available for the sub period 1993 to 2007 from www.americangaming.org, reveals that our gambling data trends are highly correlated with the alternative measures in the shorter sub-periods.

are best predicted by misperceptions of drinking/gambling/smoking attitudes (i.e. perceived injunctive norms). For example, Larimer and Neighbors (2003), in a college gambling setting, show that social norms are strong predictors of gambling behavior and gambling-related negative consequences. In this study, we assert that changes in consumption levels of alcohol, gaming, and tobacco over time serve as useful proxies for social norm acceptance of these activities. We also verify the close link between the consumption of these sin products and the attitude of survey participants toward these sins, based on survey data from Gallup Corporation, the Inter-University Consortium for Political and Social Research (ICPSR), and the American Gaming Association.

Gallup Corporation has studied human nature and behavior for more than 75 years and employs many of the world's leading scientists in management, economics, psychology, and sociology in identifying and monitoring behavioral economic indicators. The ICPSR is funded by the United States Department of Health and Human Services. There are two major ICPSR studies of interest in this paper: 1) the National Survey on Drug Use and Health (NSDUH) – this provides quarterly and annual estimates on the use of alcohol and tobacco among members of United States households aged 12 and older; and 2) Monitoring the Future (MTF) – this explores changes in important values, behaviors, and lifestyle orientations of contemporary American youth i.e. 12th-grade students. Finally, the American Gaming Association is the industry's first national information clearinghouse, providing the public with timely, accurate gaming industry data.

3.2.2 Dependent Variables

Expected financial performance – We measure firm expected financial performance as the market-adjusted return over a one-year period multiplied by negative one, measured from the end

of year t to the end of year $t+1$. The market-adjusted return, which is calculated by subtracting market return from a firm's buy-and-hold return, is multiplied by negative one to construct a performance weakness measure. Higher values correspond to weaker financial performance.

Institutional ownership and analyst coverage – institutional ownership is determined as of the end of the year and is calculated as the fraction of a firm's shares held by institutions. Analyst coverage is defined as the natural logarithm of one plus the number of analysts covering firm i at the end of year t . If a stock is missing from IBES or does not have analyst forecast data as of the end of the year, the firm is recorded as having no analyst following.

Discretionary accruals – We measure discretionary accruals using the modified Jones model (Jones 1991; Dechow, Sloan, and Sweeney 1995; Yu 2008), including lagged ROA as a performance control. The magnitude of discretionary accruals is measured as a percentage of the lagged assets of the firm. Positive (negative) discretionary accruals imply income-increasing (income-decreasing) manipulations.

Meet or beat analyst earnings expectations – Our second proxy for manager's opportunistic behavior is the frequency of meeting or beating earnings expectations. Koh, Matsumoto and Rajgopal (2008) show that managers have two main tools to meet analyst forecasts: 1) income increasing discretionary accruals and 2) downward expectations management throughout the course of the year. To capture the various types of actions that are representative of opportunistic behavior, we use a meet or beat measure in addition to a discretionary accrual measure. Managers who are more opportunistic would be expected to meet or beat earnings expectations more frequently. We measure the frequency as the number of times that a firm's announced quarterly earnings is equal to or exceeds the most recent consensus median analyst forecast within a fiscal year. This measure ranges from 0 to 4.

3.2.3. Control variables

Since our empirical tests are designed to capture the relationship between social norm strength and market participants' behavior, we control in our multivariate tests for firm characteristics that are known to be correlated with institutional ownership, analyst coverage, earnings management. Consistent with Hong and Kacperczyk (2009) and based on evidence related to predictors of institutional ownership compiled by Del Guercio (1996) and Gompers and Metrick (2001), our control variables include size, market to book value, beta, stock price inverse, standard deviation of stock return, exchange dummy, and SP 500 dummy. Moreover, following other previous literature (e.g. Bhushan 1989; Dechow and Dichev 2002; Kasznik 1999; Yu 2008), we also include lagged return on assets, growth rate of assets, and external financing activities. Finally, to control for factors affecting the macro economy and thus the consumption of sin products, we include variables for the unemployment rate and GDP growth. Definitions of all variables are provided in the Appendix.

IV. RESULTS

4.1. Social Norms and Consumption of Alcohol, Tobacco, and Gaming

We first examine the change in consumption of alcohol, tobacco, and gaming over time and then verify the correlation between the consumption of these products (descriptive norms) and the attitude of survey participants toward these products (injunctive norms). A good proxy for a social norm should indicate a high consistency between these two social norm types.

Figure 1 shows the differences in consumption/social norms for each of these three products for the period 1980 to 2007. Panels A, B, and C represent the results from alcohol, tobacco, and gaming, respectively. While the consumption measures for tobacco and alcohol have been decreasing for most of the period, there has been an uptrend for alcohol starting from

the middle of the 1990s. With respect to gaming, it is clear that the social norm acceptance level has been increasing steadily over the years. Increasingly, the government has been advertising the benefits from gaming revenues on social programs and decreased unemployment (www.safeandsecureig.org). These different evolutionary processes highlight the dynamic nature of social norms and the importance of performing separate analyses on alcohol, tobacco, and gaming stocks. For comparison purposes, we also examine the time series of financial performance of sin stocks relative to market returns. Figure 1 also shows the difference between the sin stock portfolio value weighted returns and market portfolio returns for the years 1980 to 2007. The figure suggests that the returns of all three sin stock subgroups are volatile. However, these returns in general move closely together and perform better than the broader market. The only exception is the late 1990s when technology stocks were booming.

We next verify whether our measures of sin product consumption are reliable measures of social norms in two different ways. Using data from Gallup Corporation, the Inter-University Consortium for Political and Social Research (ICPSR), and the American Gaming Association, we obtain alternative measures for both descriptive and injunctive norms. As Table 1 illustrates, we collect survey results related to descriptive norms for the three sins as follows: 1) number of drinks in last 7 days, 2) have had a drink within past 30 days, 3) over the last two weeks, how many times have you had at least five drinks in a row, 4) % of people who have smoked cigarettes in the past week, 5) % of people who have smoked at least one pack per day, and 6) casino visitation (average number of annual trips to casinos per US gambler). Table 2, Panel A presents the correlation between the macro-consumption data (our social norm proxies) used in our main tests with these survey results of people's consumption of sin products. The high correlation between our macro-level consumption and the alternative sources of consumption

related data (ranging from 0.73 to 0.96) suggests that our variables effectively capture the actual consumption of alcohol, tobacco, and gaming.

As Table 1 shows, we also collect survey results related to injunctive norms for alcohol, tobacco, and gaming companies as follows (all in % of respondents): 1) has drinking ever been a cause of problems in your family, 2) disapproval of people over age of 18 who try one or more drinks of an alcoholic beverage, 3) disapproval of people over age 18 who have five or more drinks once or twice each weekend, 4) harmfulness to try one or two drinks of an alcoholic beverage (% of respondents who say great risk), 5) harmfulness to have five or more drinks once or twice each weekend (% of respondents who say great risk), 6) perceived danger of second hand smoke, 7) smoking should be made illegal, 8) risk if one smokes one or more packs of cigarettes per day, 9) disapproval of people over age 18 smoking one or more packs of cigarettes per day, and 10) how much do you think people risk harming themselves by smoking one or more packs of cigarettes per day (% of respondents who say great risk). Table 2, Panel B presents the correlation between the main consumption measures used and the survey results of people's attitude towards sin. Although the surveys do not cover our entire sample period, the correlation between our main macro-consumption data and the survey results of people's attitude towards sin is consistently negative and high, ranging from -0.42 to -0.93. This finding suggests that our consumption data reliably measures social norms toward sin products.

4.2. Descriptive Statistics

Table 3 presents the descriptive statistics for our variables of interest and control variables. The mean institutional ownership for alcohol, tobacco, and gaming stocks is 18%, 34% and 27% respectively. These results are comparable to the 28% documented previously by Hong and Kacperczyk (2009) for sin stocks as a group. The mean analyst following for these same

stocks is 1.1, 2.0 and 1.5 respectively. Again, this finding is comparable to the 1.7 previously documented by Hong and Kacperczyk (2009). The mean discretionary accruals and the frequency of meeting or beating earnings expectation values are 0.011 and 2.065 for alcohol stocks, -0.006 and 1.927 for tobacco stocks, and 0.006 and 2.149 for gaming stocks respectively. Also of note is the positive mean and abnormal positive returns realized by holding sin stocks (0.6%, 0.9%, and 0.1% for alcohol, tobacco, and gaming stocks respectively) as well as the relatively low market risk beta for alcohol and tobacco stocks (means of 0.657 and 0.741 respectively). Finally, in unreported analysis, the correlation between institutional ownership (analyst coverage) and size is high at 0.462 (0.750) as is the correlation between institutional ownership and analyst coverage (0.536). These observations are consistent with previous literature which shows that institutional investors (analysts) tend to hold (cover) large firms and that analysts tend to cater to institutional investors by providing financial reports and analyses on companies that have high institutional ownership.

4.3. The Effect of Social Norms and Financial Incentives on Institutional Ownership and Analyst Coverage

4.3.1 The Primary Effect of Social Norms

To test hypotheses H1A and H1B, we estimate the following regressions within each of the three sin stock subgroups:

$$Dependent_Variable_{it} = \alpha_0 + \alpha_1 SocialNorm_t + \alpha_2 Controls_{it} + \varepsilon_{it} \quad (1)$$

where the dependent variables consists of institutional ownership and analyst coverage. Social norm is defined as the raw consumption of alcohol, tobacco, or gaming. Unlike Hong and Kacperczyk (2009) and Kim and Venkatachalam (2010), who use non-sin stock firms together as a control group, we run regressions within each sin stock subgroup. The benefits of our approach

are two-fold: First, we avoid the controversy of choosing the appropriate control group; and second, and more importantly, the approach facilitates the investigation of our research question – how social norms and financial incentives interplay to determine the behavior of market participants. Such an innovation is necessary as Figure 1 shows the evolution process differs across the three sin stock subgroups and financial performance of sin stocks varies widely during our sample period. The effects of social norms on institutional ownership/analyst coverage may be cancelled out in a pooling regression.

We predict that institutional ownership and analyst coverage are higher when social norm acceptances levels are higher. Thus, the coefficient α_1 in model (1) is expected to be significantly positive. Table 4, Hypothesis 1A presents the regressions for institutional ownership. It shows that, across all three sin subgroups, strong social norm acceptance levels have a significantly positive effect on institutional ownership and analyst coverage, consistent with our predictions. The t-statistics for institutional ownership are 1.75, 3.10, and 5.30 for the social norms related to alcohol, tobacco, and gaming products, respectively. The coefficient on social norms implies that a one standard deviation increase in social norm acceptance results in a 7%, 19%, and 16% increase in institutional ownership for alcohol, tobacco, and gaming industries, respectively.

We re-specify the institutional ownership regression to disaggregate the effects of social norms on holdings by five different classes of institutions defined in the Thomson Financial 13F database. We expect type 3 (mutual funds) and type 4 (independent investment advisors) institutions, who are natural arbitrageurs in the market, to be less constrained by social norms than other types of institutions whose positions in stocks are public information, institutions with diverse constituents, and institutions that can be readily exposed to public scrutiny, i.e. type 1 (banks), type 2 (insurance companies) and type 5 (all other institutions, including universities,

employee stock ownership plans, etc.). Therefore, we divide the institutions in our data set into two subgroups: We group types 1, 2 and 5 in one group; and types 3 and 4 in another group. The results are presented in Table 5. For group 1 (Panel A), results are consistent with institutions as a whole. Specifically, across all sin stock types, institutional ownership is increasing in social norm acceptance. The coefficients on social norms are statistically significant at two-tailed 5% (alcohol) and 1% (tobacco and gaming) levels. The coefficient on beta is significantly negative, indicating that more risky stocks are held less by banks, insurance companies, and other institutions. Institutional ownership of this group for alcohol, tobacco and gaming stocks is also associated negatively with inclusion in the S&P 500 and daily stock return standard deviation (except for alcohol). For group 2 (Panel B), the impact of social norms on institutional ownership is insignificant for two out of three types of “sin” (alcohol and gaming). This finding is consistent with our expectation that mutual funds and independent investment advisors are less concerned about social norms than other types of institutions and that they are more likely to play the role of arbitrageurs and buy sin stocks.

Table 6, Hypothesis 1B presents the regressions for analyst coverage. The t-statistics for analyst coverage are 2.34, 3.10, and 2.21 for social norms related to alcohol, tobacco, and gaming companies. In addition, size is significantly positive across all three subgroups, suggesting that institutional investors/analysts are more likely to invest/follow larger firms. Finally, stocks with higher standard deviation of return and stocks in the S&P 500 index have less institutional ownership, consistent with Falkenstein (1996) and Hong and Kacperczyk (2009).

4.3.2 The Interaction Effect of Social Norms and Financial Incentives

To test the interaction effect, we first conduct a univariate analysis followed by a multivariate analysis. Figure 2, Panels A and B show the results for institutional ownership and

analyst coverage for alcohol, tobacco and gaming subgroups separately. Expected financial performance, rather than actual financial performance, is used in this analysis because institutions and analysts presumably base their investment/coverage decisions primarily on future expectations. We use actual stock returns in the subsequent year to proxy for the expected financial performance.

The first cluster of results in Figure 2 represent the sample firm-year observations that are subject to low social norm acceptance levels for sin stocks and where the firm's expected market-adjusted financial return is below the sample median (i.e. these firms are expected to underperform the benchmark in the future). In contrast, the last cluster of results contains firms that are subject to high social norm acceptance levels for sin stocks and where the firm's expected market-adjusted return is above the sample median. Of all four clusters, institutional ownership and analyst coverage are predicted to be the smallest (largest) in the first (last) cluster. This expectation is consistent with the results. The difference between institutional ownership (analyst coverage) between the first and last clusters is consistently negative across all three sin stock subgroups. With respect to institutional ownership, the decrease in ownership going from the last cluster to the first cluster is 8.5%, 19.0%, and 24.4% for alcohol, tobacco, and gaming stocks respectively. With respect to analyst coverage, the differences are more pronounced. Going from cluster four to cluster one, the decrease in the number of analysts following a given firm is 24.8% for alcohol firms, 18.6% for tobacco firms, and 35.4% for gaming firms. The differences in institutional ownership and analyst coverage between the two subgroups are significantly different from zero at both the 1% and 5% significance levels for all three sin products except for analyst coverage for tobacco which is significant at the 10% level ($t=1.94$).

For our multivariate analysis, we add the interaction term of *Social Norm *Performance Weakness* into regression equation (1). Performance weakness is defined as the market-adjusted expected return multiplied by negative one, and social norms is as defined previously. *Social norms * performance weakness* is the main variable of interest, capturing the impact of social norms on institutional ownership and analyst coverage conditional on expected financial performance.

We predict that the negative impact of low social norm acceptance levels on institutional ownership (analyst coverage) is strengthened when expected financial performance is weak. Similarly, we predict that the negative impact of low social norm acceptance levels on institutional ownership (analyst coverage) is weakened when expected financial performance is strong. Thus, the coefficient of the interaction term *Social norms * performance weakness* is expected to be significantly positive. The coefficient of *Social norms* is expected to be significantly positive, consistent with the first set of hypotheses; the coefficient of *performance weakness*, representing the impact of expected future performance weakness on institutional ownership (analyst coverage), is expected to be negative. A negative sign would indicate that institutions (analysts) avoid firms with weaker expected future performance.

Table 4, Hypothesis 2A and Table 6, Hypothesis 2B report the results from the regression for institutional holdings and analyst coverage, respectively. Consistent with our expectations, the coefficients on *social norm* and the *social norm*performance weakness* interaction term are all significantly positive while the coefficients on *performance weakness* are all significantly negative. Since performance weakness is defined as market-adjusted return over one-year period multiplied by minus one (measured from the end of year t to the end of year t+1), higher expected future performance translates into a more negative performance weakness measure. Thus, the

results suggest that when a firm's future performance is expected to be good, institutional investors (analysts) will be less concerned about social norms.

To provide some clarity to the discussion above, using the summary statistics provided in Table 3, we calculate that the marginal effect of social norms on institutional ownership is 31.8% for alcohol firms in the lower quartile (poor financial performance/low social norm acceptance value) versus 23.6% for firms in the upper quartile (good financial performance/high social norm acceptance value). Similar directional results apply for tobacco and gaming firms as well as for analyst coverage across all sin stock types. In addition to the main variables of interest noted above, Table 4, Hypothesis 2A and Table 6, Hypothesis 2B show that institutional ownership (analyst coverage) is increasing in firm size. These results are consistent with those found in Table 4, Hypothesis 1A and Table 6, Hypothesis 1B. Also important is the fact that the inclusion of the performance weakness and social norm/performance weakness interaction terms does not materially change the sign and significance of other control/explanatory variables.

Again, we re-specify the ownership regression to disaggregate the effects of social norms and performance weakness on holdings by different classes of institutions. Results are presented in Table 5, Panel A, Hypothesis 2A and Table 5, Panel B, Hypothesis 2A. Consistent with Hypothesis 1A and 1B, Panel A shows that type 1, 2, and 5 institutional investment decisions are more likely to be driven by a comprehensive consideration of social norms and financial incentives (compared to type 3 and 4 institutional investors). These results are confirmed by the significantly positive coefficients of *Social Norm* and the interaction term, and a significantly negative coefficient of *Performance Weakness* for types 1, 2, and 5 but mostly insignificant coefficients for types 3 and 4. The sign and significance of all control/explanatory variables are

consistent with the regressions in previous section; namely, institutional ownership for types 1, 2, and 5 are increasing in firm size and social norms and decreasing in beta and std of return.

4.4 The Effect of Social Norms and Financial Incentives on Opportunistic Behavior by Management

4.4.1 The Primary Effect of Social Norms

We use the same regression in equation (1) to test hypotheses H1C-H1D. However, now the dependent variable is management opportunistic behavior, which is measured in two ways: 1) discretionary accruals; and 2) meet or beat earnings expectations. We choose these two measures instead of other earnings quality measures, such as earnings smoothness and persistence, because the incentives for management manipulation changes from year to year given the dynamic nature of social norms and financial performance. As we predict that management's opportunistic behavior decreases in accordance with the strength of social norm acceptance, the coefficient α_1 in model (1) is expected to be significantly negative. Table 7, Hypothesis 1C and Table 8, Hypothesis 1D presents the results from the regressions with discretionary accruals and meet or beat earnings expectations as dependent variables respectively. Because meet or beat earnings expectations is a count value, we adopt a negative binomial regression model, where coefficients are estimated by maximum likelihood estimation⁵.

Table 7, Hypothesis 1C shows that, across all three sin stock subgroups, high social norm acceptance levels have a negative effect on discretionary accruals (coefficients of -0.04, -0.013, and -0.002 for alcohol, tobacco, and gaming stocks respectively), consistent with the argument that when social norm acceptance levels are low, sin stock firms are at a competitive

⁵ We also use Poisson regression model to fit the data and the results are similar.

disadvantage and, as a result, manage earnings in an effort to compensate. Moreover, for those firms listed as part of the S&P 500, the coefficient is significantly negative, suggesting that these firms engage in less opportunism. Finally, the results indicate that all sin firm types are more likely to engage in opportunism when motivated to do so as part of their need for external financing. This is consistent with findings by Dechow, Sloan and Sweeney (1996). Table 8, Hypothesis 1D shows consistent results for the frequency of meeting or beating earnings expectations. The results suggest that when social norm acceptance levels are high, managers are less likely to engage in opportunistic management behavior in order to make reported earnings more attractive to investors. More specifically, a one standard deviation increase in social norm acceptance levels results in a decrease in the number of times per year that analyst forecasts are exceeded by 0.12, 0.20, and 0.16 for alcohol, tobacco, and gaming firms respectively. Also interesting is the fact that prior year good performance, as measured by lagged return on assets, provides incentive for managers to meet or beat earnings expectations in the current year in an effort to extend this trend. Finally, consistent with results above for discretionary accruals, all sin firm types are more likely to engage in opportunism when there are high external financing needs.

4.4.2. The Interaction Effect of Social Norms and Financial Incentives

Figure 3, Panel A and Panel B present the univariate results for management opportunistic behaviors for the alcohol, tobacco and gaming subgroups. Figure 3 is set up in much the same way as Figure 2, with the exception that actual rather than expected market-adjusted returns are used. The rationale for using current returns is that managers interact in a real-time world where income increasing accruals and managing analyst expectations are made in the context of current period stock market performance. As such, the first cluster contains firms that underperform the

market, whereas the last (fourth) cluster contains firms that outperform the market. Thus, discretionary accruals and the frequency of meeting and beating earnings expectations are predicted to be the smallest (largest) in the last (first) cluster. As shown in Figure 3, the first cluster has the greatest mean of the discretionary accruals and the total times of meet/beat earnings expectations, while the last cluster has the smallest mean of the discretionary accruals and the total times of meet/beat earnings expectations. For discretionary accruals, going from the last cluster to the first cluster results in an increase in the amount of 0.026, 0.019, and 0.0105 for alcohol, tobacco, and gaming industries respectively. When it comes to earnings expectations, firms in the first cluster meet or beat them approximately one more time per year than firms in the last cluster. The exact difference is 1.371 for alcohol firms, 1.13 for tobacco firms, and 1.37 for gaming firms. These results are consistent with management being more opportunistic when social norms are strong and financial performance is poor, than when social norms are weak and financial performance is strong.

In our multivariate analysis, we estimate an OLS regression for discretionary accruals and negative binomial regression for meet and beat earnings forecast within each of the three stock subgroups to determine whether our prediction still holds after controlling for other variables that are expected to affect management opportunistic behavior. These variables include size, beta, inverse of stock price, std of return, NASD, SP500, lagged return on assets, growth rate of assets, GDP, unemployment and external financing activities. In the regressions, the dependent variable is discretionary accruals or the frequency of meet and beat earnings expectations. Performance weakness is defined as the market-adjusted expected return multiplied by negative one, social norms is as defined previously, and *social norms * performance weakness* is the main variable of interest because it captures the impact of social norms on management's

opportunistic behavior, conditional on expected financial performance. We predict that the impact of low social norm acceptance levels on management opportunistic behavior is moderated by strong financial performance, i.e., we predict that the impact of low social norm acceptance levels on management opportunistic behavior is strengthened by weak financial performance. Thus, the coefficient of the interaction term is expected to be negative. The coefficient of *social norm* is also expected to be negative, consistent with hypothesis 1. The coefficient of *performance weakness*, representing the impact of market-adjusted return on management behavior is expected to be positive, since there is more incentive to be opportunistic when financial performance is weak.

Table 7, Hypothesis 2C reports the coefficients from the OLS regression with discretionary accruals as dependent variable. The coefficients on social norms are significantly negative for alcohol and tobacco stocks (coefficients of -0.016 and -0.010 respectively) but insignificantly negative for gaming stocks. With the exception of gaming stocks, these results are consistent with actual results from Hypothesis 1C. The coefficients on *performance weakness*, and *social norm * performance weakness* interaction terms are mostly consistent with expectations. While the coefficient on performance weakness for tobacco stocks is positive and the coefficient on *social norm * performance weakness* for gaming stocks is negative, they are insignificant (t-values of 1.51 and -1.36 respectively). The results suggest, when a firm's performance is good, managers will be less concerned about the negative effects brought about by strict social norms and therefore be less likely to take opportunistic actions to attract investors. On the other hand, when firm performance is poor, managers will be more concerned about the negative effects brought about by strict social norms. Therefore, they will be more likely to take opportunistic actions to attract investors. Consistent with results from Table 7, Hypothesis 1C,

those firms not part of the S&P 500 and those firms requiring external financing are more likely to engage in opportunism.

Table 8, Hypothesis 2D presents the coefficients from regression model (3) for meeting or beating earnings expectations. The coefficients for social norms are significantly negative for all sin stock types, consistent with results from Hypothesis 1C. The coefficients on *performance weakness* are positive and the coefficients on *social norm * performance weakness* interaction are significantly negative for all sin stock types, consistent with expectations. Similar to above, the results suggest that managers facing strong social norm impacts/weak financial performance are more likely to be opportunistic and as such, meet or beat earnings expectations than those managers facing weak social norm effects/strong financial performance. Finally, the coefficients on the control variables indicate that firms with lower stock prices, lower volatility, and greater need for external financing are more likely to meet or beat earnings expectations.

In summary, our findings suggest that the behavior of market participants (institutions, analysts, and managers of sin companies) dynamically changes with the level of social norms and financial incentives. The evidence extends the insights provided by Hong and Kacperczyk (2009) that sin stocks have higher expected returns than otherwise comparable stocks. They attribute the finding to the fact that sin stocks are neglected by constrained investors and face greater litigation risk heightened by social norms. Focusing on sin stocks themselves, we avoid the measurement errors in the proxies for litigation risk and investor's attention which are different across sin and non-sin stocks. Our finding suggests social norm constrained investors may not neglect sin stocks, otherwise they would not adjust their sin stock holdings and coverage dynamically in response to the change of social norms. In addition, unless the change of litigation on sin firms is

also dynamic and perfectly correlated with the evolution of social norms, our study confirms that it is social norms rather than litigation that drive the behavior of market participants.

4.5. Sensitivity Analyses

4.5.1 Correlation between Social Norms and Financial Performance

One potential issue with using consumption data as a social norm proxy is that consumption data can also be thought of as a primitive proxy for demand. Unexpected increases in demand should affect future cash flows, which in turn affects accounting and stock returns. As such, one may argue that our results will be affected by the following relationship: increased consumption leads to higher profits, which in turn leads to increased analyst following and institutional ownership. In our opinion, this relation cannot explain why financial performance goes up while consumption goes down, which has been generally the case for alcohol and tobacco industries, as Figure 1 illustrates. Figure 1 shows that the social norm and financial performance plots are not correlated. The correlations between ROA and our consumption based social norm proxies are only 0.126, 0.003, and -0.111 for alcohol, tobacco, and gaming industries respectively. In addition, to further address the concerns that consumption data is nothing more than a primitive for demand/net income and that consumption data may be highly correlated with other macroeconomic factors (such as unemployment rate and GDP) which have nothing to do with social norm acceptance levels, we first regress the consumption data on unemployment rate, GDP and industry-level ROA as following:

$$SocialNorm_t = \alpha_0 + \alpha_1 UnemploymentRate_t + \alpha_2 GDP_t + \alpha_3 IndustryROA_t + \varepsilon_t \quad (2)$$

where industry-level ROA is calculated as the total earnings divided by the total assets for alcohol, tobacco and gaming industry, respectively. We use the residuals from the above

regression to proxy for social norms which is orthogonal to economic factors. We re-run our regressions presented in previous sections. The results remain robust.

4.5.2. Alternative Social Norm Proxies

In section 4.1, we verify that the consumption of sin products is associated with the attitude toward sin products by using survey results from Gallup Corporation and the Inter-University Consortium for Political and Social Research (ICPSR). While the time series availability of Gallup data, ICPSR data, and American Gaming Association data in some cases is not as extensive as the consumption data used in our main tables, the sixteen questions cover a wide variety of both injunctive and descriptive norm proxies. Because the time series correlation between these new measures from Gallup Corporation, ICPSR, and the American Gaming Association are between 42% and 96% (average correlation of 77%), we include these new measures proxying social norms in lieu of our main proxies in each of our multivariate analyses. In most cases, our results are robust and significant.

4.5.3 Alternative Proxies for Financial Performance

In addition to using market adjusted returns, we also adopt two alternative proxies to measure performance. First, we use the CAPM model, where firm performance is measured as the residual from subtracting expected returns from realized returns. Expected returns are calculated using estimated coefficients from the estimation period, defined as the 36 month window prior to year t . Second, we use a Fama-French three/four factor model to estimate expected returns, where firm performance is again measured as the residual from subtracting expected returns from realized returns. Our results are robust to each of these alternative proxies and are available from the authors upon request.

One potential concern about the performance weakness measure used in model (2) is whether realized return is a good proxy for ex ante expectations of future returns. To mitigate this concern, we use analyst earnings forecasts as a proxy for ex ante expectations of future returns. The performance weakness measure is then calculated as the difference between the realized earnings and one-year consensus median analyst forecast over year $t+1$. Untabulated results indicate that our main results are not sensitive to the new proxy for performance.

V. CONCLUSION

Using alcohol, tobacco, and gaming consumption data and people's attitudes toward these sin products to proxy for the social norm acceptance level, we investigate how the investment decisions of institutional investors, the coverage decisions of financial analysts, and the opportunistic behavior of management are affected by the financial performance of sin companies and related social norms. We find that institutional investors' shareholdings and analyst coverage of "sin" companies are increasing in the degree of social norm acceptance and that the association between shareholdings/coverage and social norm acceptance is less pronounced for firms with higher future expected performance. We also show that managers' opportunistic behavior, proxied by discretionary accruals and analyst meet-or-beat frequencies, is related negatively to the extent of social norm acceptance and that the association between the degree of opportunism and social norm acceptance is less pronounced for firms with higher financial performance.

Economic literature models both non-financial (social norms) and financial (profit) incentives in utility function of economic agents, but calls for direct empirical evidence on the tradeoff between the two factors. We provide strong empirical support for a substitution effect between financial and non-financial incentives among economic agents. We show that when

social norms interact with financial considerations, market participants would sacrifice their adherence to social norms for financial rewards. This finding is important and should be of interest to academics, investors, standard setters, and various other stakeholders, given the recent financial crisis and the limited empirical evidence in the literature. Our research question, research design and findings highlight the importance of having empirical measures of social norms. By using changes in consumption of sin products as a proxy for the evolution of social norms towards sin stocks, we document the distinct evolution process of social norms related to different sin products (alcohol, tobacco, and gaming). We thus overcome the drawback of assuming a constant social norms level over time and extend previous studies by showing how social norms are priced in a dynamic setting.

Future research could examine whether financial and social norm considerations interact in a similar way in other countries, further explore the relationship between social norms and ethics (as social norms reflect the pooled ethics of society as a whole). Identifying the boundary of social norms and its impact on market stakeholders is an emerging area of interest; one that we believe will continue to provide useful insights to our society in the future.

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APPENDIX

Variable	Definition
Institutional ownership	The fraction of the shares of company i held by institutions at the end of year t . This is calculated by aggregating the shares held by all types of institutions at the end of the year and then dividing this amount by shares outstanding at the end of the year.
Analyst coverage	Logarithm of one plus the number of analyst estimates issued on a company at the end of the year. Stocks that do not appear in IBES are assumed to have no analyst estimates.
Discretionary accruals	Estimated by a cross-sectional version of the modified Jones model, including lagged ROA as a performance control. The magnitude of discretionary accruals is measured as a percentage of the lagged assets of the firm.
Meet or beat earnings expectations	The number of times that a firm's announced quarterly earnings exceeds the most recent consensus median analyst forecast within a fiscal year. This measure ranges from 0 to 4.
Size	Logarithm of the market value of equity of the company.
Beta	Firm's systematic risk measured in the calendar year in which the beginning of the fiscal year falls.
Inverse of stock price	One over the stock price at the end of the year.
Std of return	Daily stock return standard deviation during the year.
NASD	One if the stock is listed on Nasdaq and zero otherwise.
SP500	One if the stock is in the S&P 500 index and zero otherwise.
Return on assets	Earnings before extraordinary items, deflated by lagged assets.

GDP	US per capita GDP in thousands of dollars; adjusted for inflation.
Unemployment	US unemployment rate.
Growth rate of assets	Change in total assets from year t-1 to year t scaled by total assets of year t-1.
External financing activities	The sum of net proceeds from equity financing and debt financing scaled by total assets. The proceeds from equity financing are measured by net cash received from the sale of common and preferred stock less cash dividend paid. The proceeds from debt financing are measured by net cash received from the issuance (or reduction) of short- and long-term debt.
Financial performance	Market-adjusted return over one-year calculated by subtracting market return from a firm's buy-and-hold return.

Table 1.
Descriptive statistics of social norm measures

	Mean	Median	Standard Deviation	Source and period
Alcohol				
Alcohol consumption (US per capita in gallons)	2.37	2.29	0.22	www.niaaa.nih.gov 1980-2007 Note: this is the primary measure used in regressions
Number of drinks in last 7 days (around date of survey)	4.03	4.00	0.21	www.gallup.com 1996-2007
Have had a drink within past 30 days (%)	59.50	58.00	3.63	Michigan, * NSDUH database 1982-2007
Over the last two weeks, how many times have you had at least five drinks in a row (% of respondents)	32.31	30.50	4.94	Michigan, MTF database 1980-2007
Has drinking ever been a cause of problem in your family (% of respondents)	26.14	23.50	5.96	www.gallup.com 1980-2007
Disapproval of people over age of 18 who try one or two drinks of an alcoholic beverage (% of respondents)	24.90	26.20	4.59	Michigan, MTF database 1980-2007
Disapproval of people over age 18 who have five or more drinks once or twice each weekend (% of respondents)	64.08	64.85	4.11	Michigan, MTF database 1980-2007
Harmfulness of trying one or two drinks of an alcoholic beverage (% of respondents who say great risk)	6.95	7.45	1.89	Michigan; MTF database 1980-2007
Harmfulness of having five or more drinks once or twice each weekend (% of respondents who say great risk)	43.44	43.30	3.77	Michigan, MTF database 1980-2007
Tobacco				
Tobacco consumption (US per capita in pieces)	2087.08	2033.22	444.35	www.usda.gov 1980-2007 Note: this is the primary measure used in regressions
% of people who smoked cigarettes in the past week	28.71	29.00	5.05	www.gallup.com 1980-2007
Smoke at least one pack per day (%)	48.37	49.75	9.42	Michigan, NSDUH database 1982-2007
Perceived danger of second hand smoke (% of respondents)	49.36	51.50	6.36	www.gallup.com 1994-2007

Smoking should be made illegal (% of respondents)	13.22	13.00	1.70	www.gallup.com 1990-2007
Risk if smoke one or more pack of cigarettes per day (% of respondents who say little or no risk)**	8.42	8.55	1.85	Michigan, NSDUH database 1985-2007
Disapproval of people over age 18 smoking one or more packs of cigarettes per day (% of respondents)	72.45	71.95	3.72	Michigan, MTF database 1980-2007
How much do you think people risk harming themselves by smoking one or more packs of cigarettes per day (% of respondents who say great risk)	69.10	68.65	4.55	Michigan, MTF database 1980-2007
Gaming				
Gaming consumption (visitor volume to Las Vegas as % of total US population)	9.46	10.71	2.95	www.lvcva.com 1980-2007 Note : this is primary measure used in regressions
Casino Visitation (average number of annual trips to casinos per US gambler)	5.45	5.70	0.97	www.americangaming.org 1993-2007

Note: * Source *Michigan* stands for www.icpsr.umich.edu/icpsrweb/SAMHDA/sda

** To be consistent with other questions, this measure is transferred to % of respondents who consider smoking risky by subtracting the percentage from 1 in correlation table 2, panel B.

Table 2.
Correlations between consumption of sin products and Gallup/SAMHSA/American Gaming Association survey results

This table presents the correlation between the consumption of sin products (used as primary social norm measure) and the survey responses collected by Gallup Corporation, the Office of Applied Studies, Substance Abuse and Mental Health Services Administration (SAMHSA), of the United States Department of Health and Human Services, based at the Inter-University Consortium for Political and Social Research (ICPSR), and the American Gaming Association in different sample periods.

Panel A. Correlations between macro-consumption data and the survey results of people’s consumption of sin products

Survey Questions	Sin products		
	Alcohol	Tobacco	Gaming
Number of drinks in last 7 days (around date of survey)	0.74		
Have had a drink within past 30 days (%)	0.73		
Over the last two weeks, how many times have you had at least five drinks in a row (% of respondents)	0.89		
% of people who smoked cigarettes in the past week		0.96	
Smoke at least one pack per day (%)		0.93	
Average number of annual trips to casinos per US gambler			0.80

Panel B. Correlations between macro-consumption data and the survey results of people’s attitude towards sin

Survey Questions	Sin products	
	Alcohol	Tobacco
Has drinking ever been a cause of problem in your family (% of respondents)	-0.66	
Disapproval of people over age of 18 who try one or two drinks of an alcoholic beverage (% of respondents)	-0.78	
Disapproval of people over age of 18 who have five or more drinks once or twice each weekend (% of respondents)	-0.71	
Harmfulness of trying one or two drinks of an alcoholic beverage (% of respondents who say great risk)	-0.76	
Harmfulness of having five or more drinks once or twice each weekend (% of respondents who say great risk)	-0.70	

Perceived danger of second hand smoke (% of respondents)	-0.77
Smoking should be made illegal (% of respondents)	-0.57
Risk if smoke one or more pack of cigarettes per day (% of respondents)	-0.93
Disapproval of people over age 18 smoking one or more packs of cigarettes per day (% of respondents)	-0.42
How much do you think people risk harming themselves by smoking one or more packs of cigarettes per day (% of respondents who say great risk)	-0.92

Table 3.
Summary statistics

Institutional ownership is the fraction of shares of a firm held by institutions. Analyst coverage is the log of one plus the number of analyst estimates issued on a company at the end of the year. Discretionary accruals are estimated by a cross-sectional version of the modified Jones model. Meet or beat earnings expectations is measured as the number of times that a firm's announced quarterly earnings exceed the most recent consensus median analyst forecast within a fiscal year. Alcohol consumption is the recorded adult (15+) per capita consumption of alcohol in gallons. Tobacco consumption is the domestic per capita consumption of tobacco in pieces. Gaming consumption is the number of gaming visitors to Las Vegas as a % of the total population. Financial performance is the market-adjusted return over one-year calculated by subtracting market return from a firm's buy-and-hold return. Size is the logarithm of the market capitalization of the company. Beta is the firm's industry market beta. Inverse of stock price is one over the stock price at the end of the year. Std of return is the daily stock return standard deviation during the year. Return on assets is calculated as net income divided by total assets. Growth rate of assets is calculated as the change in assets scaled by lagged assets. External financing activities are measured by the sum of net cash received from equity and debt issuance scaled by total assets.

Variable	Alcohol		Tobacco		Gaming	
	Mean	StdDev	Mean	StdDev	Mean	StdDev
Institutional Ownership	0.181	0.237	0.341	0.298	0.274	0.298
Analyst Coverage	1.139	1.105	1.966	1.160	1.527	1.034
Discretionary accruals	0.011	0.092	-0.006	0.057	0.006	0.075
Meet or beat earnings expectations	2.065	1.282	1.927	1.184	2.149	1.236
Consumption (Social norm proxy)	2.366	0.215	2087	444	9.457	2.947
Financial performance	0.006	0.037	0.009	0.033	0.001	0.052
Size	12.619	2.065	14.391	2.261	12.409	1.717
Beta	0.657	0.280	0.741	0.315	1.339	0.497
Inverse of stock price	0.118	0.220	0.051	0.080	0.172	0.267
Std of return	0.026	0.015	0.021	0.011	0.036	0.016
Return on assets	0.053	0.074	0.103	0.113	0.033	0.151
Growth rate of assets	0.137	0.439	0.125	0.404	0.373	0.905
External financing activities	0.005	0.141	-0.045	0.150	0.096	0.242

Table 4.**Regression analyses of institutional ownership**

This table presents the OLS regressions of institutional ownership on social norm and control variables for the full sample. The dependent variable is institutional ownership. This is calculated as the fraction of shares of a firm held by institutions. Performance weakness is the market-adjusted return over year t+1 multiplied by minus one. Market-adjusted return over one-year is calculated by subtracting market return from a firm's buy-and-hold return. The higher the measure of performance weakness, the weaker its financial performance. NASD equals one if the stock is listed on Nasdaq and zero otherwise. SP500 equals one if the stock is in the S&P 500 index and zero otherwise. GDP is US per capita GDP in thousands of dollars. Unemployment is the US unemployment rate. See Table 3 for the definition of all other independent variables. Hypothesis 1A is tested in the first six columns. Hypothesis 2A is tested in the next six columns. The t-statistics in all regression models are adjusted for firm-level clustering. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels (two-tailed) respectively.

Variable	Hypothesis 1A						Hypothesis 2A					
	Alcohol		Tobacco		Gaming		Alcohol		Tobacco		Gaming	
	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
Social norms	0.324*	1.75	0.390***	3.10	0.048***	5.30	0.292*	1.82	0.411***	3.14	0.051***	4.57
Performance weakness							-7.22**	2.11	-3.289*	1.77	-1.501**	1.99
Social norms *performance weakness							2.490*	1.88	0.950**	2.00	0.080**	2.00
Size	0.059***	2.77	0.051***	2.91	0.059***	2.53	0.066***	2.87	0.043***	2.60	0.078**	2.73
Beta	0.068	1.35	0.062	1.59	0.007	1.24	0.070	1.42	0.065	1.05	-0.007	0.33
Inverse of stock price	-0.045	0.41	-0.262	0.73	-0.086	1.16	-0.035	0.34	-0.240	0.77	-0.014	0.22
Std of return	-0.978***	3.10	-6.838*	1.89	-2.065**	2.18	-1.171*	1.84	-7.021*	1.83	-3.834***	3.27
NASD	0.028	0.51	-0.189	1.54	-0.070	0.20	0.052	0.81	-0.133	1.41	-0.029	0.30
SP500	-0.089***	3.18	-0.030***	3.30	-0.100*	1.74	-0.099	1.17	-0.287**	2.48	-0.079*	1.63
Lagged return on assets	0.049	0.81	0.120	0.77	0.104	1.21	0.051	0.82	0.187	1.19	0.053	0.54
Growth rate of assets	-0.087	1.32	-0.123*	1.90	-0.030	1.49	-0.067	1.10	-0.112*	1.78	-0.039*	1.83
External financing activities	0.041	0.29	0.332**	2.23	-0.021	0.34	0.066	0.51	0.395**	2.22	0.009	0.10
GDP	0.000	1.40	0.000	1.01	0.000	0.97	0.000	1.53	0.000	1.14	0.000	1.03
Unemployment	-0.057	1.20	-0.041	0.64	-0.029	1.28	-0.017	1.31	-0.012	0.73	-0.028	1.42
Intercept	-4.051*	1.88	2.293***	3.64	1.343	0.38	-3.752**	2.24	3.946***	3.21	1.575	0.17
N	452		222		585		447		220		554	
Adj R-Square	0.259		0.582		0.370		0.279		0.591		0.400	

Table 5.**Regression analyses of institutional ownership for partitioned samples**

This table presents the OLS regressions of institutional ownership on social norms, expected financial performance, and control variables for two sub samples partitioned by types of institutional ownership. The dependent variable is institutional ownership, which is calculated as the fraction of shares of a firm held by institutions. NASD equals one if the stock is listed on Nasdaq and zero otherwise. SP500 equals one if the stock is in the S&P 500 index and zero otherwise. GDP is US per capita GDP in thousands of dollars. Unemployment is the US unemployment rate. See Table 3 for the definition of all other independent variables. Panel A presents the results from the subsample of type 1 (banks), type 2 (insurance companies), and type 5 (others including pension plans, endowments, and employee-ownership plans) institutions. Panel B presents the results from the sample of type 3 (mutual funds) and type 4 (independent investment advisors) institutions. The t-statistics in all regression models are adjusted for firm-level clustering. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels (two-tailed) respectively.

Panel A. Institutional ownership (Type 1+2+5)

Variable	Hypothesis 1A						Hypothesis 2A					
	Alcohol		Tobacco		Gaming		Alcohol		Tobacco		Gaming	
	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
Social norms	0.279**	2.28	0.692***	3.12	0.037***	3.73	0.281**	2.23	0.290***	3.12	0.038***	3.82
Performance weakness							-4.241*	1.84	-1.456**	1.98	-0.366**	2.05
Social norms *performance weakness							1.496***	2.59	0.329*	1.90	0.004*	1.64
Size	0.059***	3.64	0.028	1.59	0.049***	3.20	0.060***	4.02	0.024***	3.11	0.038***	2.81
Beta	-0.021**	2.00	-0.117*	1.63	-0.049**	2.28	-0.019*	1.90	-0.110*	1.91	-0.063***	2.83
Inverse of stock price	-0.026	0.45	-0.048	0.21	-0.019	0.32	-0.017	0.27	-0.083	0.48	0.011	0.29
Std of return	-0.987	1.28	-5.321**	1.78	-1.367*	1.97	-1.156	1.43	-5.295**	2.01	-2.291***	2.62
NASD	0.004	0.10	-0.127	1.28	0.005	0.14	0.012	0.39	-0.084	1.03	0.003	0.09
SP500	-0.048**	2.11	-0.152**	2.04	-0.033*	1.92	-0.049***	3.80	-0.161**	2.02	-0.062	0.44
Lagged return on assets	0.029	0.37	-0.028	0.19	0.100	1.42	0.015	0.31	-0.010	0.12	0.079	0.79
Growth rate of assets	-0.098	1.39	-0.029	0.87	-0.009	0.65	-0.054	1.38	-0.038	0.85	-0.028	1.26
External financing activities	0.049	0.39	0.196*	1.83	-0.064	1.61	0.061	0.58	0.231*	1.84	-0.048	1.15
GDP	0.000	1.49	0.000*	1.66	0.000	0.82	0.000	1.51	0.000*	1.73	0.000	1.09
Unemployment	-0.095	1.38	-0.038	1.10	-0.041	1.30	-0.087	1.55	-0.029	1.14	-0.039	1.48
Intercept	3.777**	2.28	2.661***	3.02	1.237	0.63	3.897***	2.80	2.678***	3.19	1.543	0.41
N	452		222		585		447		220		554	
Adj R-Square	0.301		0.573		0.390		0.313		0.581		0.432	

Panel B. Institutional ownership (Type 3+4)

Variable	Hypothesis 1A						Hypothesis 2A					
	Alcohol		Tobacco		Gaming		Alcohol		Tobacco		Gaming	
	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
Social norms	0.015	0.22	0.158**	2.48	0.005	1.10	0.016	0.29	0.057*	1.91	0.003	0.56
Performance weakness							-2.867	0.89	-0.511	0.25	-0.181	0.73
Social norms *performance weakness							0.984	1.52	0.136	1.50	0.004	1.21
Size	0.010	1.37	0.080***	3.30	0.019	0.76	0.018	1.28	0.030***	2.95	0.006	0.52
Beta	0.084**	2.28	0.192***	3.29	0.058***	3.67	0.114***	2.75	0.170***	3.73	0.068***	3.92
Inverse of stock price	-0.047	0.48	-0.213	1.01	-0.054**	2.39	-0.029	0.54	-0.190	1.03	-0.034	1.37
Std of return	0.090	0.19	-0.721	0.59	-0.765	1.17	0.081	0.21	-0.890	0.84	-1.349*	1.94
NASD	0.029	0.78	-0.038	0.87	-0.031	0.65	0.030	0.91	-0.057	1.28	-0.010	0.49
SP500	-0.040	1.15	-0.216***	2.75	-0.019	0.33	-0.052	1.41	-0.121**	2.41	-0.020	0.34
Lagged return on assets	0.020	1.19	0.154	1.44	0.006	0.15	0.025	1.08	0.164*	1.65	-0.011	0.37
Growth rate of assets	-0.036*	1.78	-0.088**	2.23	-0.017*	1.66	-0.020	0.68	-0.066**	2.31	-0.017*	1.75
External financing activities	0.021	0.48	0.219**	2.30	0.028	1.10	0.022	0.37	0.218**	2.19	0.060	1.31
GDP	0.000	1.45	0.000	0.64	0.000	0.74	0.000	1.60	0.000	0.79	0.000	0.54
Unemployment	-0.026	0.92	-0.010	0.36	-0.026	0.84	-0.019	1.02	-0.003	0.22	-0.022	1.01
Intercept	4.265	1.08	2.219***	3.37	1.631	0.02	4.270	1.24	2.297***	2.76	1.644	0.11
N	452		222		585		447		220		554	
Adj R-Square	0.110		0.413		0.127		0.130		0.427		0.141	

Table 6.**Regression analyses of analyst coverage**

This table presents the OLS regressions of analyst coverage on social norms, expected financial performance, and control variables. Analyst coverage is the log of one plus the number of analyst estimates issued on a company at the end of the year. NASD equals one if the stock is listed on Nasdaq and zero otherwise. SP500 equals one if the stock is in the S&P 500 index and zero otherwise. GDP is US per capita GDP in thousands of dollars. Unemployment is the US unemployment rate. See Table 3 for the definition of all other independent variables. Hypothesis 1B is tested in the first six columns. Hypothesis 2B is tested in the next six columns. The t-statistics in all regression models are adjusted for firm-level clustering. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels (two-tailed) respectively.

Variable	Hypothesis 1B						Hypothesis 2B					
	Alcohol		Tobacco		Gaming		Alcohol		Tobacco		Gaming	
	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
Social norms	1.018**	2.34	0.740***	3.10	0.084**	2.21	1.113***	2.48	0.729***	3.83	0.114*	1.95
Performance weakness							-4.438***	3.10	-1.327*	1.77	-0.804*	1.75
Social norms *performance weakness							1.344***	2.87	0.250**	2.05	0.025***	2.37
Size	0.487***	3.87	0.468***	3.92	0.461***	3.89	0.456***	4.10	0.471***	4.00	0.410***	4.82
Beta	0.147	1.38	0.383	1.15	0.098*	1.76	0.180	0.84	0.341	1.61	-0.081	0.69
Inverse of stock price	0.078	0.22	0.089	0.13	-0.228	0.78	0.219	0.68	-0.516	0.99	-0.482	1.41
Std of return	9.365	1.25	1.108	0.68	2.654	1.32	12.018*	1.96	-3.103	0.40	-2.147	0.51
NASD	0.575**	2.39	0.529	1.41	-0.187	1.53	0.629**	2.47	0.711*	1.90	-0.192*	1.68
SP500	0.184***	2.85	0.490	1.54	0.129**	2.19	0.190	0.61	0.320	1.05	0.040	0.36
Lagged return on assets	0.084	0.99	0.765	0.97	0.378*	1.92	-0.098	0.20	0.755	1.39	0.410*	1.83
Growth rate of assets	-0.210	1.43	-0.281	0.21	-0.119*	1.90	-0.222	1.18	-0.067	0.33	-0.109*	1.77
External financing activities	0.427	1.00	-0.777*	1.86	-0.004	0.02	0.572	1.34	-0.520	1.29	0.061	0.30
GDP	0.000	1.02	0.000*	1.70	0.000	0.69	0.000	1.28	0.000*	1.67	0.000	0.72
Unemployment	-0.283**	2.36	-0.368*	1.90	-0.582**	2.22	-0.173***	3.18	-0.273**	2.00	-0.422***	5.01
Intercept	0.559***	3.66	-1.340***	3.75	-1.894***	4.13	1.161***	2.91	-1.969***	3.90	-2.357***	4.60
N	452		222		585		447		220		554	
Adj R-Square	0.440		0.780		0.716		0.450		0.789		0.741	

Table 7.
Regression analyses of discretionary accruals

This table presents the OLS regressions of discretionary accruals on social norms, expected financial performance, and control variables. Discretionary accruals are estimated by a cross-sectional version of the modified Jones model. NASD equals one if the stock is listed on Nasdaq and zero otherwise. SP500 equals one if the stock is in the S&P 500 index and zero otherwise. GDP is US per capita GDP in thousands of dollars. Unemployment is the US unemployment rate. See Table 3 for the definition of all other independent variables. Hypothesis 1C is tested in the first six columns. Hypothesis 2C is tested in the next six columns. The t-statistics in all regression models are adjusted for firm-level clustering. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels (two-tailed) respectively.

Variable	Hypothesis 1C						Hypothesis 2C					
	Alcohol		Tobacco		Gaming		Alcohol		Tobacco		Gaming	
	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
Social norms	-0.040**	2.18	-0.013**	2.23	-0.002**	2.21	-0.016**	1.98	-0.010**	1.20	-0.003	1.59
Performance weakness							1.881*	1.93	0.831	1.51	0.014*	1.65
Social norms *performance weakness							-0.632**	2.24	-0.241*	1.76	-0.001	1.36
Size	-0.002	0.10	-0.002	0.89	0.001	0.29	0.000	0.01	-0.002	1.31	0.000	0.02
Beta	0.048	1.16	-0.004	0.68	0.002	0.87	0.106	1.44	-0.007	0.45	0.002	0.37
Inverse of stock price	0.004	0.18	0.113*	1.81	0.007	0.40	0.002	0.18	0.172**	2.19	-0.004	0.27
Std of return	-0.118	0.29	-0.312	0.51	-0.142	0.51	-0.096	0.10	-0.162	0.29	0.157	0.48
NASD	0.020**	2.31	0.082***	3.01	0.006	0.84	0.013	1.99	-0.076***	2.84	-0.002	0.21
SP500	-0.019***	3.35	-0.006**	2.12	-0.004**	2.26	-0.017***	3.34	-0.004***	2.51	-0.002*	1.69
Lagged return on assets	-0.006	0.07	0.056	0.92	0.000	0.00	-0.003	0.04	0.019	0.57	0.017	0.28
Growth rate of assets	0.038	0.68	0.017**	2.18	-0.018**	2.16	0.025	0.52	0.031**	2.04	-0.011	1.45
External financing activities	0.064*	1.85	0.019**	2.01	0.023	1.54	0.034***	3.19	0.019**	2.06	0.031***	2.70
GDP	0.000	1.02	0.000	0.83	0.000	0.56	0.000	1.10	0.000	0.97	0.000	0.47
Unemployment	0.498	0.74	0.421	1.15	0.219	1.60	0.429	0.89	0.388	1.13	0.172	1.52
Intercept	4.416	0.35	2.123	1.51	1.626	0.17	4.429	0.23	1.966	0.79	1.634	0.25
N	452		222		585		447		220		554	
Adj R-Square	0.069		0.092		0.014		0.070		0.114		0.021	

Table 8.**Regression analyses of meet/beat earnings expectations**

This table presents the negative binomial regression of meet/beat earnings expectations on social norms, financial performance, and control variables. Meet or beat earnings expectations is measured as the number of times that a firm's announced quarterly earnings exceed the most recent consensus median analyst forecast within a fiscal year. NASD equals one if the stock is listed on Nasdaq and zero otherwise. SP500 equals one if the stock is in the S&P 500 index and zero otherwise. GDP is US per capita GDP in thousands of dollars. Unemployment is the US unemployment rate. See Table 3 for the definition of all other independent variables. Hypothesis 1D is tested in the first six columns. Hypothesis 2D is tested in the next six columns. The t-statistics in all regression models are adjusted for firm-level clustering. ***, **, and * indicate statistical significance at the 1 percent, 5 percent and 10 percent levels (two-tailed) respectively.

Variable	Hypothesis 1D						Hypothesis 2D					
	Alcohol		Tobacco		Gaming		Alcohol		Tobacco		Gaming	
	Estimate	Pr>ChiSq	Estimate	Pr>ChiSq	Estimate	Pr>ChiSq	Estimate	Pr>ChiSq	Estimate	Pr>ChiSq	Estimate	Pr>ChiSq
Social norms	-0.561**	0.04	-0.429*	0.07	-0.046**	0.05	-1.134*	0.07	-0.547*	0.05	-0.036*	0.09
Performance weakness							58.521**	0.05	29.548**	0.03	5.330**	0.01
Social norms *performance weakness							-19.800**	0.03	-8.86**	0.03	-0.1845**	0.03
Size	0.099	0.19	0.126	0.18	0.001	0.97	0.075	0.28	0.178	0.11	-0.029	0.38
Beta	-0.054	0.81	0.281	0.46	0.121**	0.04	-0.178	0.50	0.093	0.75	0.056	0.49
Inverse of stock price	2.564***	<.0001	11.478***	0.00	0.361*	0.10	2.264***	0.00	12.852**	0.03	0.583***	0.01
Std of return	-26.452**	0.01	-11.794	0.50	3.532	0.23	-40.398***	0.00	-9.978*	0.06	-1.910*	0.06
NASD	0.453**	0.01	0.663*	0.07	0.178***	0.01	0.422***	0.00	0.989**	0.01	0.138**	0.04
SP500	-0.197	0.36	-0.372	0.37	0.126	0.19	-0.156	0.46	-0.288	0.39	0.167	0.16
Lagged return on assets	1.845*	0.05	0.675**	0.04	0.465**	0.02	-0.048	0.98	1.099	0.18	0.290	0.22
Growth rate of assets	-0.387	0.21	-0.722	0.17	-0.572***	<.0001	-0.090	0.60	-0.892	0.21	-0.417***	0.00
External financing activities	0.961***	<.0001	0.879**	0.01	1.352***	<.0001	0.478***	0.01	0.790***	0.00	0.832***	0.00
GDP	0.000	0.32	0.000	0.84	0.000	0.11	0.000	0.39	0.000	0.94	0.000*	0.09
Unemployment	0.874	0.48	0.592	0.37	0.799	0.86	0.868	0.57	0.467	0.44	0.745	0.99
Intercept	3.870	0.53	0.288	0.21	2.386**	0.04	4.423	0.89	-1.067*	0.10	2.953***	0.00
N	127		100		310		127		100		310	

Figure 1. Panel A: Alcohol

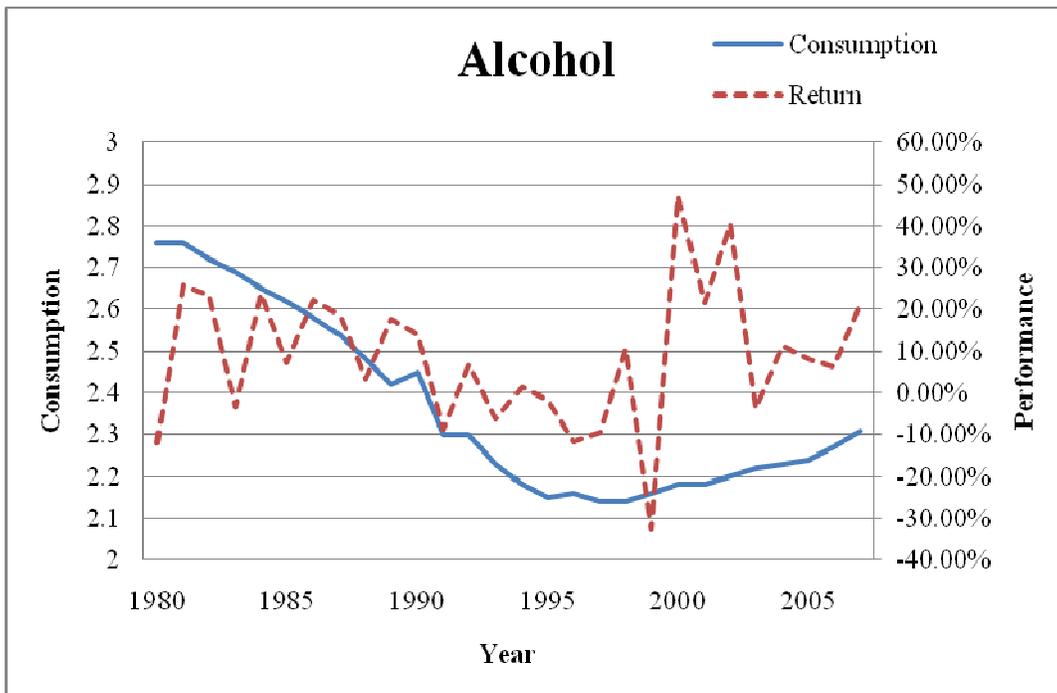


Figure 1. Panel B: Tobacco

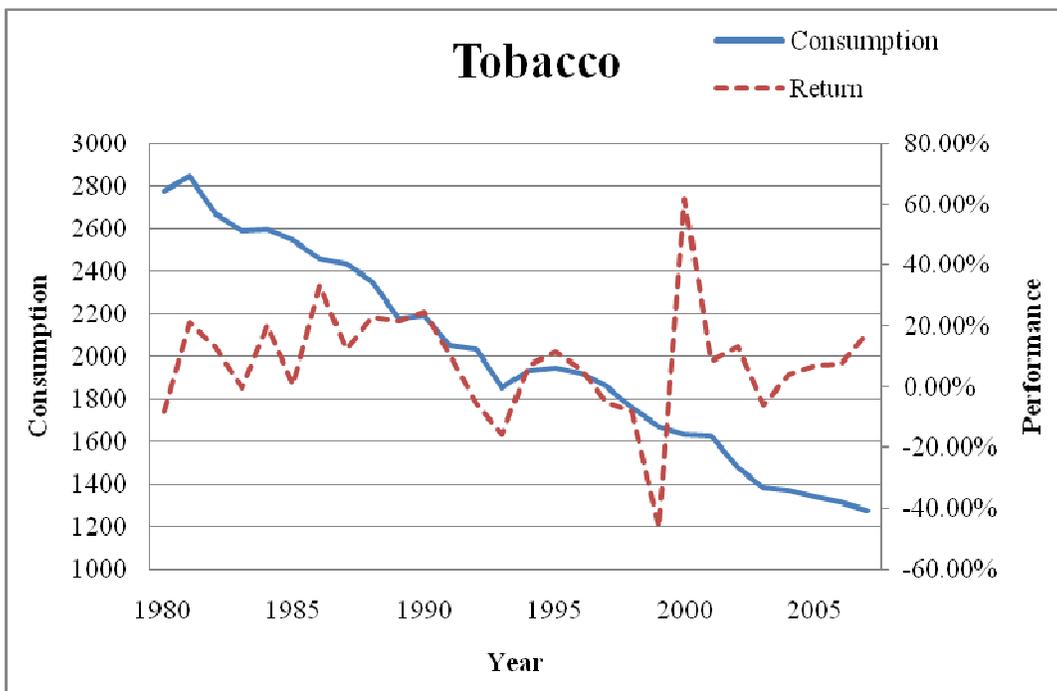


Figure 1. Panel C: Gaming

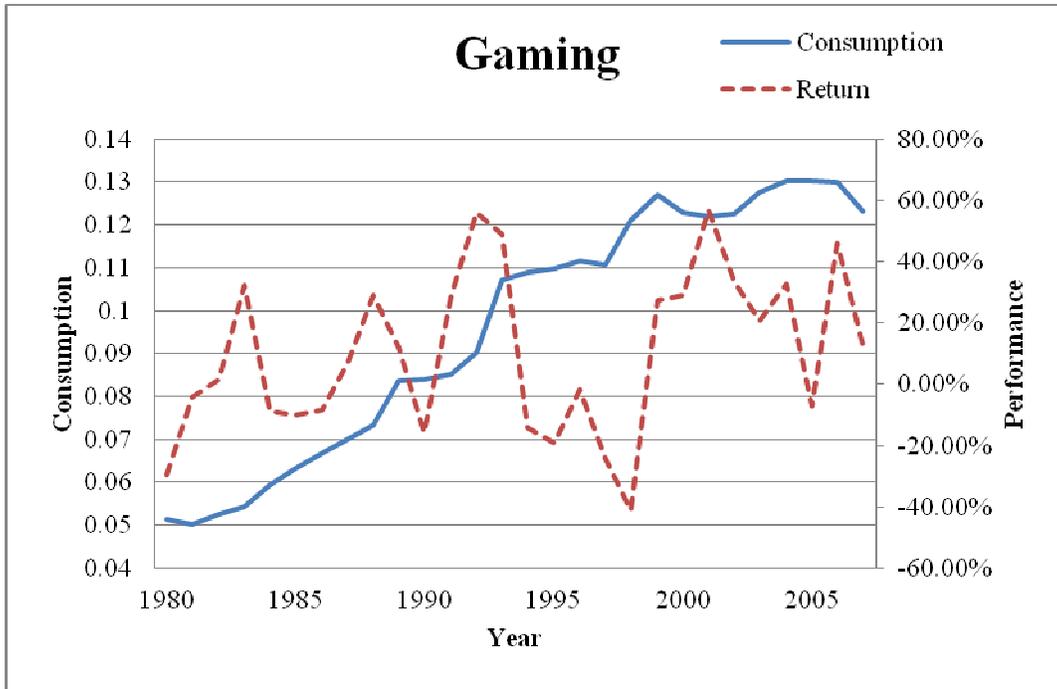


Figure 1. Plots of Social Norm Measures and Time Series of Financial Performance of Sin Stocks. Alcohol consumption is the recorded adult (15+) per capita consumption of alcohol in gallons. Tobacco consumption is the domestic per capita consumption of tobacco in pieces. Gaming consumption is the number of gaming visitors to Las Vegas as a % of the total population. Financial performance is defined as the differences between the “sin” stock portfolio return and the market portfolio return from 1980 to 2007.

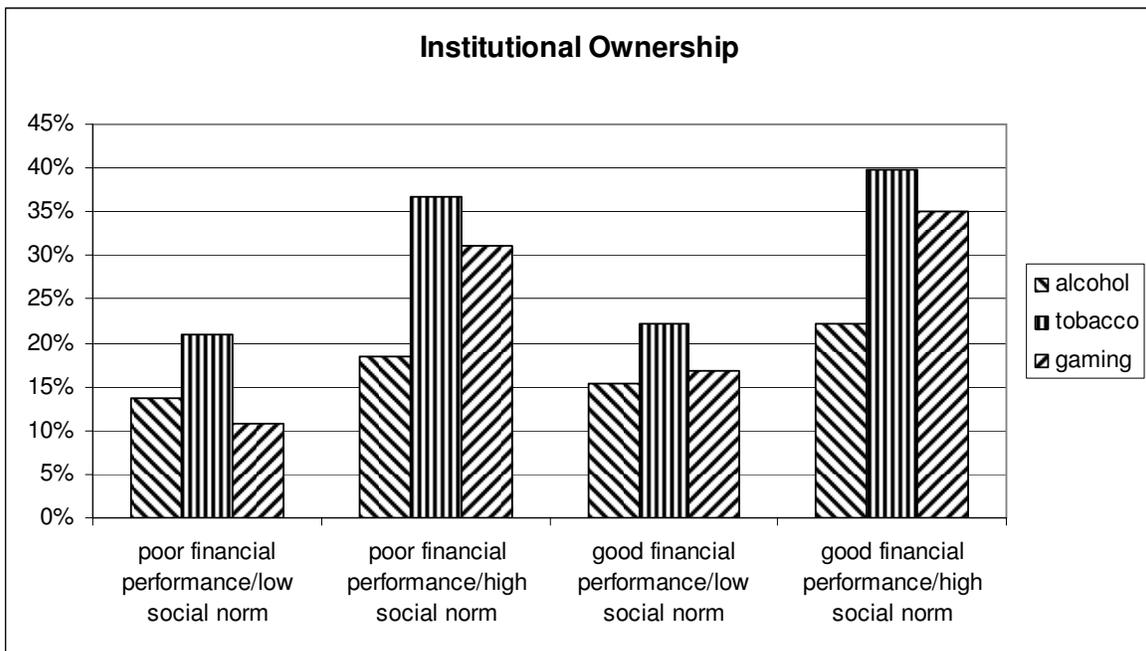


Figure 2. Panel A. Univariate Analysis – Institutional Ownership Partitioned by Social Norm Measure and Financial Performance. Institutional ownership is the fraction of shares of a firm held by institutions.

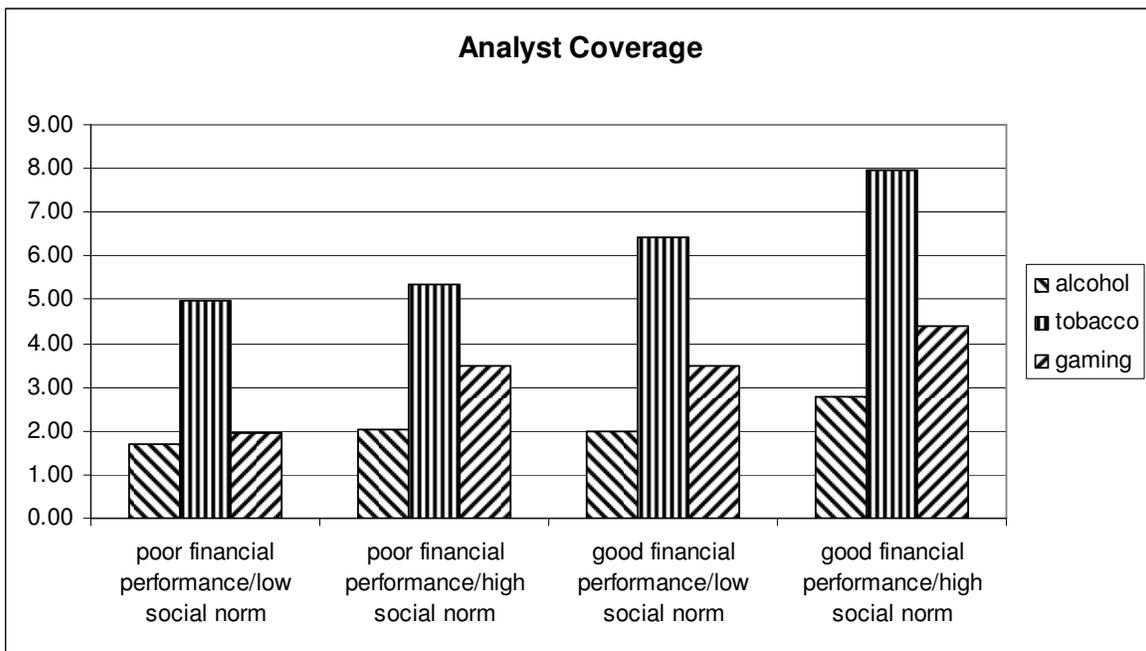


Figure 2. Panel B. Univariate Analysis – Analyst Coverage Partitioned by Social Norm Measure and Financial Performance. Analyst coverage is the number of analyst estimates issued on a company as of year-end.

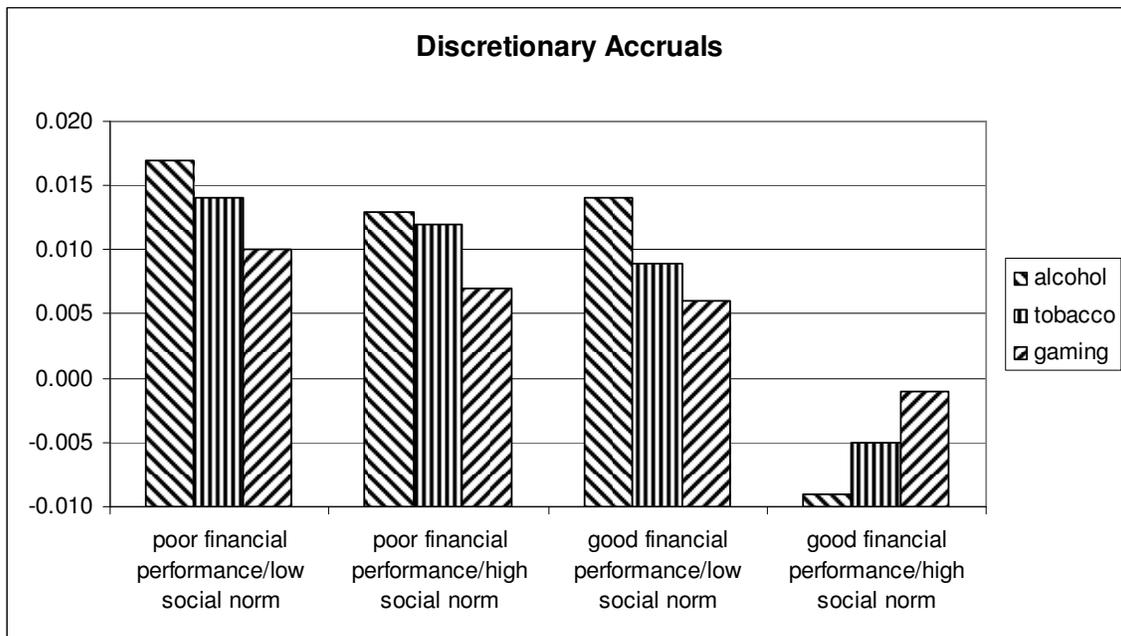


Figure 3. Panel A. Univariate Analysis – Discretionary Accruals Partitioned by Social Norm Measure and Financial Performance. Discretionary accruals are estimated by a cross-sectional version of the modified Jones model.

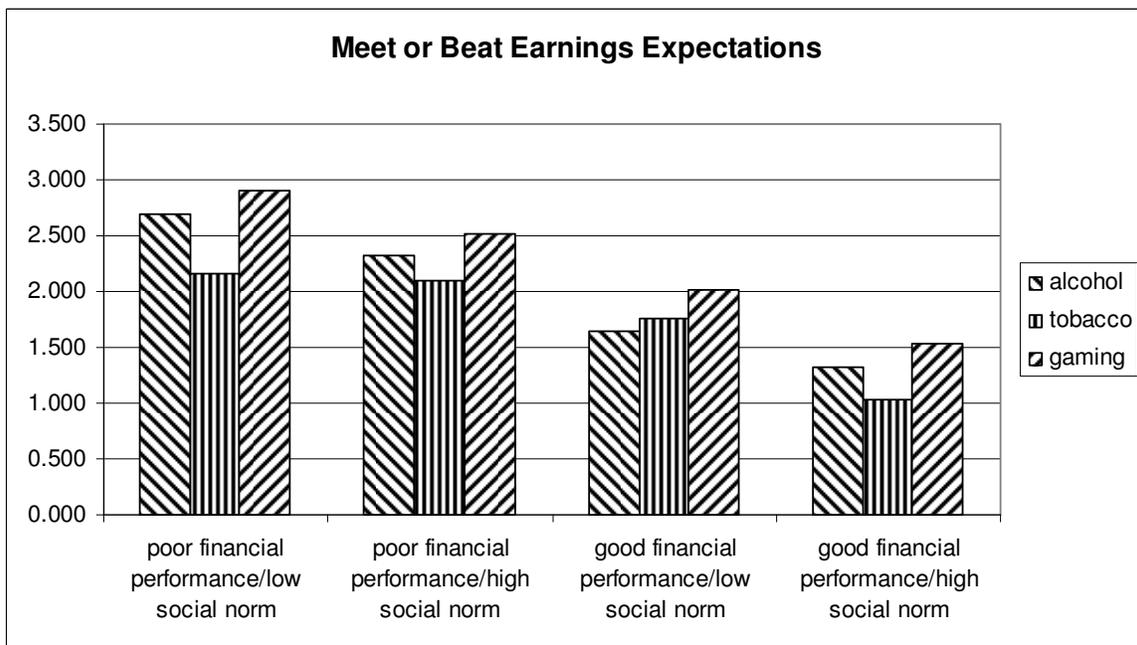


Figure 3. Panel B. Univariate Analysis – Meet or Beat Earnings Expectations Partitioned by Social Norm Measure and Financial Performance. Meet or beat earnings expectations is measured as the number of times that a firm’s announced quarterly earnings exceed the most recent consensus median analyst forecast within a fiscal year.