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Religious beliefs, gambling attitudes, and financial market outcomes ☆

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ABSTRACT

This study investigates whether geographic variation in religion-induced gambling norms affects aggregate market outcomes. We conjecture that gambling propensity would be stronger in regions with higher concentrations of Catholics relative to Protestants. Consistent with our conjecture, we show that in regions with higher Catholic–Protestant ratios, investors exhibit a stronger propensity to hold lottery-type stocks, broad-based employee stock option plans are more popular, the initial day return following an initial public offering is higher, and the magnitude of the negative lottery-stock premium is larger. Collectively, these results indicate that religion-induced gambling attitudes impact investors' portfolio choices, corporate decisions, and stock returns.

1. Introduction

Gambling and speculation play an important role in financial markets. These and related activities are often associated with high levels of trading volume, high return volatility, and low average returns (e.g., Scheinkman and Xiong, 2003; Hong, Scheinkman, and Xiong, 2006; Grinblatt and Keloharju, 2009; Dorn and Sengmueller, 2009). As gambling attains wider acceptability in society and a "lottery culture" emerges (e.g., Shiller, 2000), the influence of gambling behavior in financial markets is likely to increase and could have economically significant effects on corporate decisions and stock returns. Specifically, in market settings that superficially resemble actual gambling environments and in which skewness is a salient feature, people's gambling attitudes may influence aggregate market outcomes.

For example, if the positively skewed returns of initial public offering (IPO) stocks lead investors to perceive IPOs as lotteries, their preference for lottery-like payoffs and trading behavior could generate initial overpricing (e.g., Barberis and Huang, 2008). More generally, if investors exhibit a preference for stocks with lottery features, all else equal, stocks with lottery-type characteristics would

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earn lower average returns.[1] Similarly, the popularity of broad-based employee stock option (ESO) plans has been difficult to explain within the traditional economic framework (e.g., Oyer and Schaefer, 2004; Bergman and Jenter, 2007; Kedia and Rajgopal, 2009). One potential explanation for this puzzle is that option grants to non-executives reflect the gambling preferences of rank and file employees (e.g., Spalt, 2009). Individuals with strong gambling preferences may find firms that offer option-based compensation plans attractive if they view stock options as "lottery tickets."[2] Some managers may even attempt to cater to those preferences.

The important role of gambling in various market settings has been recognized in the recent asset pricing and corporate finance literatures. However, it has been difficult to attribute aggregate market outcomes directly to people's gambling preferences because individual-level gambling and speculative activities cannot be directly observed. In this paper, we use people's religious beliefs as a proxy for their gambling propensity and examine whether geographical variation in religious composition, particularly the variation in the ratio of Catholics to Protestants across U.S. counties, allows us to identify market-wide effects of gambling behavior.

Our choice of religious composition as a proxy for gambling propensity is motivated by the observation that gambling attitudes are strongly determined by one's religious background. In particular, the Protestant and Catholic churches have very distinct views on gambling.[3] A strong moral opposition to gambling and lotteries has been an integral part of the Protestant movement since its inception, and many Protestants perceive gambling as a sinful activity (e.g., Starkey, 1964; Ozment, 1991; Ellison and Nybroten, 1999). Although individual Protestant churches vary in the intensity with which they oppose gambling, the opposition to gambling is quite general. The largest Protestant group, the Southern Baptists, is particularly strident in their censure of gambling.

In contrast, the Roman Catholic Church maintains a tolerant attitude towards moderate levels of gambling and is less disapproving of gambling activities. It has even used gambling in the form of bingo and charitable gaming events as an important source of fundraising (e.g., Diaz, 2000; Hoffman, 2000). Among other prominent religious denominations in the U.S., people of Jewish faith behave similar to Catholics and accept gambling activities more readily, while the gambling attitudes of Latter-Day Saints (Mormons) are aligned more closely with those of Protestants.

The impact of these diverse viewpoints on gambling is evident in state lottery adoption policies and levels of lottery expenditures. Prior empirical research has shown that the popularity of state lotteries in a region is affected by the dominant local religion (e.g., Berry and Berry, 1990; Martin and Yandle, 1990; Ellison and Nybroten, 1999). A few recent studies also demonstrate that religion-induced gambling attitudes carry over into financial decisions (e.g., Kumar, 2009; Doran, Jiang, and Peterson, in press). We confirm these findings using our county-level measures of religious composition. In particular, we show that states with higher concentrations of Catholics relative to Protestants (i.e., higher Catholic–Protestant ratio (CPRATIO)) are more likely to legalize state lotteries and adopt them earlier. Further, at both state and county levels, we find that per capita lottery sales are higher in regions with high CPRATIO. We also show that individual investors located in high CPRATIO regions assign larger portfolio weights to lottery-type stocks (see Fig. 1) and confirm that religion-induced gambling attitudes carry over into financial decisions.

Motivated by these empirical findings, we conjecture that religion-induced heterogeneity in gambling preferences and behavior could affect economic decisions in other settings. In particular, the predominant local religion could influence local cultural values and norms and consequently affect the financial and economic decisions of individuals located in that region, even if they do not personally adhere to the dominant local faith.[4] Further, these financial and economic decisions could aggregate and generate market-wide forces that can potentially influence aggregate financial market outcomes.

We consider four specific economic settings in which the existing literature has suggested the possible role of gambling and examine the link between religious beliefs,

[1] Motivated by the salient features of state lotteries (low price, low negative expected return, and risky as well as skewed payoff) and the theoretical framework of Barberis and Huang (2008), Kumar (2009) defines stocks that have low prices, high idiosyncratic volatility, and high idiosyncratic skewness as lottery-type stocks. In contrast, non-lottery-type stocks have high prices, low idiosyncratic volatility, and low idiosyncratic skewness. See Section 2 for an additional discussion.

[2] The conjecture that certain employees are likely to perceive stock options as gambles is supported by the evidence that employees frequently value options higher than the actuarially fair value (e.g., Hodge, Rajgopal, and Shevlin, 2010; Hallock and Olson, 2006; Devers, Wiseman, and Holmes, 2007) and the finding that riskier firms grant more employee stock options (Spalt, 2009).

[3] The gambling views typical of many Protestant churches are expressed in the United Methodist Church's 2004 *Book of Resolutions*: "Gambling is a menace to society, deadly to the best interests of moral, social, economic, and spiritual life, and destructive of good government. As an act of faith and concern, Christians should abstain from gambling and should strive to minister to those victimized by the practice." The position of the Catholic Church on gambling is summarized in the *New Catholic Encyclopedia*: "A person is entitled to dispose of his own property as he wills…so long as in doing so he does not render himself incapable of fulfilling duties incumbent upon him by reason of justice or charity. Gambling, therefore, though a luxury, is not considered sinful except when the indulgence in it is inconsistent with duty" (O'Hare, 2002). Further, the Catechism of the Catholic Church states: "Games of chance (card games, etc.) or wagers are not in themselves contrary to justice. They become morally unacceptable when they deprive someone of what is necessary to provide for his needs and those of others. The passion for gambling risks becoming an enslavement. Unfair wagers and cheating at games constitute grave matter, unless the damage inflicted is so slight that the one who suffers it cannot reasonably consider it significant" (2413). Thompson (2001, pp. 317–324) provides a summary of the gambling views of major religious denominations in the U.S.

[4] We do not use the local religion measures to identify the religious background of the individual making a decision. While individual religious background is important in shaping gambling attitudes, we assume that the dominant local religion shapes the local culture, which in turn has the potential to systematically affect the decisions of local individuals in different settings, including economic decisions. For example, the decisions of an individual located in Utah might be influenced by the local Mormon culture even if the person is not a Mormon. Similarly, a Catholic in Protestant-dominated Tennessee might at least partially be influenced by local Protestant cultural norms.