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Gambling preference, information risk, and the pricing of bank loans

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ABSTRACT

Our study explores the effect of local gambling preferences (LGP) on bank loan pricing, revealing that lenders impose significantly higher interest rates on firms situated in areas characterized by stronger gambling tendencies. Our results remain robust after conducting a series of sensitivity tests that account for firm-, county-, and loan-specific attributes, as well as several identification robustness checks. Specifically, our relocation analysis shows that firms moving to areas with higher (lower) gambling preferences experience higher (lower) costs of bank loans compared to control groups. Our channel analysis further reveals that local gambling preferences exacerbate a firm's information risk environment, as captured by poorer earnings quality, heightened earnings risk, and greater managerial concealment of bad news, resulting in higher borrowing costs. Finally, we observe that firms in areas with higher LGP encounter more stringent non-price loan terms. However, institutional ownership and the threat of takeovers significantly mitigate the adverse effect of LGP on bank loan pricing.

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1. Introduction

Local culture influences the behavior and decisions of individuals and institutions (Zingales 2015). Firms' interactions with local employees, suppliers, and customers shape how local culture influences firm-level outcomes (Van Doorn et al. 2010; Rivera 2012). Accordingly, a growing body of literature presents contrasting evidence of the influence of local gambling preferences on firms' decisions and wealth creation. For instance, higher local gambling preferences (LGP) increase investors' returns by fostering risk-taking behavior (Kumar, Page, and Spalt 2011) and enhancing firm value through increased innovation activity (Chen et al. 2014). Conversely, higher LGP increase audit risk and information risk for the firm (Callen and Fang 2020; Christensen, Jones, and Kenchington 2018), potentially negatively impacting firm value. Therefore, the magnitude of local gambling preferences sends mixed signals to lenders about a borrowing firm – a positive signal due to increases in actual output (i.e. innovation) and a negative signal due to adverse effects on firms' information quality. Given these potential contrasting implications, we examine how local gambling preferences influence the cost of bank loans.

Higher local gambling preferences can potentially increase the cost of bank loans by contributing to the opaque information environment of the firm. Specifically, there tends to be greater information asymmetry between borrowers and lenders (Ji et al. 2021; Christensen, Jones, and Kenchington 2018) when borrowing firms are located in areas with high gambling preferences, making it more difficult for banks to accurately assess a borrower's true financial position and creditworthiness. Conversely, higher local gambling preferences can potentially reduce the cost of bank loans by fostering increased innovation activities (Chen et al. 2014) since successful innovation enhances a firm's market penetration and demand for its offerings, bolsters its resilience

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to shifts in consumer taste and demand, and ultimately increases a firm's cash flows. Moreover, if such innovation activities are specifically geared to eco-friendly and sustainable innovation, this would strengthen the resilience of the business model and ensure sustainable future cash flows, leading to a greater market share.

Utilizing an extensive dataset of publicly traded firms, we examine the impact of local gambling preferences on the cost of bank loans in the United States settings from 1980 to 2010.[1] In line with established research methodologies (e.g. Kumar, Page, and Spalt 2011; Chen et al. 2014; Christensen, Jones, and Kenchington 2018), we measure local gambling preferences by calculating the ratio of Catholic to Protestant adherents, which we extract from the Association of Religion Data Archives (ARDA). Drawing from syndicated loan data provided by the Dealscan database, our findings demonstrate that local gambling preferences exert a significantly positive influence on the cost of bank loans. Specifically, our results reveal that a one-standard-deviation increase in local gambling preferences corresponds to a 6.63 basis point rise in loan spread, equivalent to a substantial $1.108 million increase for our average firms. Furthermore, our main finding remains robust to address endogeneity concerns. These tests include instrumental variable regression, propensity score matching, entropy balancing, change analysis, difference-in-differences analysis exploring headquarters' relocation, and the inclusion of controls for firm-specific and county-specific omitted variable bias.

We consider three proxies – earnings quality, earnings risk, and managerial hiding of bad news – related to the firms' information risk channels, which is a key consideration for banks when pricing loans (Armstrong, Guay, and Weber 2010; Ertugrul et al. 2017). To test our channel, we apply three different specifications to test our channels: (a) the role of local gambling preference on the channels, (b) the effect of channels on the main variable of interest (loan spread), and (c) the effect of interaction between channels and local gambling preference on the main variable of interest (loan spread). Following this approach, we find that higher LGP increases firms' information risk leading to higher cost of bank loans. More specifically, the combined impact of LGP and earnings quality positively and significantly affects the cost of bank loans. Related to the information quality channel, Hasan et al. (2014) show that higher tax avoidance leads to an increase in the cost of bank loans. By employing the cash-effective tax rate, we provide evidence that local gambling preferences lead to higher tax avoidance. More importantly, we find that the joint effect of LGP and tax avoidance on the cost of bank loans is positive and statistically significant at the conventional levels. Second, we establish that LGP increases borrowers' earnings risk, as evidenced by increased earnings (and return) volatilities. We also provide evidence that the combined influence of LGP and earnings (stock return) volatility positively and significantly impacts the cost of bank loans.

Finally, we examine the concealment of bad news by management, as proxied by firms' stock price crash risk, which serves as another related channel of information risk. Stock price crash risk is often associated with the degree of information asymmetry within a firm. Higher levels of information asymmetry provide management with more opportunities to withhold negative information from investors, making it difficult for banks to accurately assess loan applications.

Given that higher LGP is positively related to a higher level of stock price crash risk (Ji et al. 2021), we test and find that higher stock price crash risk contributed by higher local gambling preference increases the cost of bank loans. These findings suggest that earnings and return volatilities, as well as stock price crash risk, are likely channels through which LGP contributes to the higher cost of bank loans.

In further analyses, we examine the role of LGP on nonprice loan terms. Our findings reveal that loan contracts by firms operating in areas with higher local gambling preferences tend to have significantly shorter maturity, a higher likelihood of being secured, and a greater number of restrictive covenants. These tightened nonprice contract terms signify that the economic effect of LGP on the effective cost of bank loans is likely even higher than that implied solely by the loan spread. Finally, we document that external corporate governance mechanisms, which enhance earnings quality (Velury and Jenkins 2006) and increase the threat of takeover (Cain, McKeon, and Solomon 2017), play a pivotal role in reducing the cost of bank loans. More importantly, these mechanisms also attenuate the positive influence of local gambling preferences on the cost of bank loans.

Our contribution to the existing literature is twofold. First, the cost of bank loans is the result of the equilibrium between banks' supply of loans and firms' demand for bank loans. However, existing literature on the cost of bank loans mainly focuses on the demand-side factors by accounting for borrowers' soft and hard information (e.g. Pennacchi 1988; Bharath, Sunder, and Sunder 2008; Chava, Livdan, and Purnanandam 2008; Graham, Li, and Qiu 2008; Lin et al. 2011; Kim, Song, and Zhang 2011; Balachandran and Duong 2019; Luo et al. 2018; Cheung, Tan, and Wang 2018; He and Hu 2016; Jiang et al. 2018; Álvarez-Botas and González 2021). We adopt a different approach by incorporating both supply-side and demand-side factors in pricing the cost of bank loans. Specifically, we document that our main empirical result holds after controlling for standard demand-side hard information and supply-side information, such as the size of bank deposit collection, access to financing, and total amount of commercial and industrial credit disbursed by the bank. Hence, our empirical design offers a more complete and robust approach to understanding the pricing of bank loans relative to the current body of literature.

Second, prior studies have identified various determinants of the cost of bank loans, including hard information (Pennacchi 1988; Bharath, Sunder, and Sunder 2008; Chava, Livdan, and Purnanandam 2008; Graham, Li, and Qiu 2008; Lin et al. 2011; Kim, Song, and Zhang 2011; Balachandran and Duong 2019; Luo et al. 2018; Cheung, Tan, and Wang 2018). However, compared to hard information, the role of soft information in financing costs is still evolving. To date, the literature has documented the influence of local social capital (Hasan et al. 2017), religious adherence (He and Hu 2016; Jiang et al. 2018), and trust (Álvarez-Botas and González 2021) on the pricing of bank loans. We extend this line of literature by showing that firms in areas with higher LGP incur higher costs for bank loans and more restrictive non-price terms. Relatedly, we contribute to the expanding literature on the significance of local gambling preference. While prior studies have highlighted LGP's beneficial role in fostering innovation (Chen et al. 2014; Adhikari and Agrawal 2016) and enhancing the value of cash holdings (Li 2017), we document its potential adverse consequences, where higher LGP levels can lead to costly bank financing for firms.

Our work is related to Jiang et al. (2018), who documented the influence of local religious adherence on firms' financing costs. However, in addition to our empirical approach that presents a complete equilibrium pricing model by considering both supply and demand side factors as well as new channels, several important distinctions still exist between our work and Jiang et al. (2018).

First, at the conceptual level, there is a clear and economically meaningful difference between religious adherence and LGP constructs. Religious adherence represents the fraction of the population affiliated with religious organizations irrespective of the types and denominations of faiths (Jiang et al. 2018). However, using a generalized measure of religious adherence is less reliable due to the significant differences among different religions in terms of beliefs and actions. Even within the same faith, such as Christianity, substantial distinctions exist between two prominent branches, namely Catholic and Protestant. Recognizing these differences, Hilary and Hui (2009) argue that separately studying Catholic and Protestant groups is crucial to eliminate the possibility of correlated omitted variables. Hence, our LGP measure, specifically the ratio of the Catholic to Protestant population, captures the dominance and prevalence of certain core theological beliefs and perspectives on essential life matters, including views on gambling and risk-taking preferences compared to other groups (Catholic vs. Protestant). In summary, our measure, which captures the prevailing public belief regarding gambling and risk-taking preferences, differs from any crude measure of religiosity.

Secondly, from an empirical perspective, the measurement of religiosity is a subject of debate in the literature.[2] Perhaps more importantly, prior literature has argued that religious adherence serves as a proxy for risk aversion, but there is a lack of direct empirical evidence to support this notion in previous research. In contrast, the definition and measurement of LGP remain consistent in the empirical literature. Furthermore, empirical literature provides support for the idea that LGP reflects risk preferences (Hilary and Hui 2009; Chen et al. 2014; Adhikari and Agrawal 2016). Relatedly, risk aversion entails a lack of preference for variance in returns, while gambling preferences involve a preference for skewness in returns. Conceptually, variance in returns and skewness in returns represent significantly different econometric terms and capture distinct aspects and behavioral traits of the return distribution.[3]

Overall, our work is based on two contrasting hypotheses, proposes different economic rationales, and presents distinct sets of tests. These include exogenous changes in local gambling preferences and direct channels that demonstrate the relationship between LGP and the pricing of bank loans. Consequently, our findings make significant contributions to the bank loan and local gambling preference literature.

The rest of the paper is structured as follows: Section 2 introduces the hypothesis; Section 3 presents sample selection and characteristics. Sections 4 and 5 present the primary results, endogeneity tests, and series of additional robustness checks. Section 6 additional robustness check using firm-fixed effects. Section 7 provides details on the channel analysis. Section 8 presents supplementary tests covering non-price terms and the role of corporate governance. Section 9 concludes.

2. Hypothesis development

Banks generally price both hard and soft information in their lending decisions. While hard information, such as firms' profitability, earnings volatility, market performance, information quality, loan size, and maturity, is easily observable and factored into the loan contract, soft information is challenging to quantify and communicate to a third party (Rajan, Seru, and Vig 2010). Nonetheless, comprehending the knowledge and context of soft information is necessary to assess its impact on lending decisions (Liberti and Petersen 2018; He and Hu 2016). Therefore, soft information, such as borrowers' local gambling preferences, can provide valuable insights when pricing bank loans.

The information value of borrowers' local gambling culture is based on the perceived attitude towards gambling activities captured in the definition of local gambling preference. Ellison and Nybroten (1999) document that while Protestants are conservative and perceive gambling as sinful, Catholics are more tolerant of alcohol and gambling. Consequently, existing literature interprets a higher Catholic-Protestant population ratio as an indicator of the dominance of local gambling preferences, influencing risk-taking behavior at the community level (Kumar, Page, and Spalt 2011; Chen et al. 2014; Callen and Fang 2020). Therefore, the Catholic-Protestant population ratio could be informative about firms' risk-taking behavior that can result in either value-additive innovation potential (Chen et al. 2014) or unreliable financial reporting quality (Christensen, Jones, and Kenchington 2018). In either case, local gambling preferences are likely to inform the pricing of bank loans.

We propose two competing hypotheses. The first hypothesis predicts that firms in areas with higher gambling preferences experience increased bank loan prices due to local gambling preferences that foster opaque financial reporting, aggressive tax behavior, greater earnings volatility, promoting managerial hiding of bad news, and, ultimately, higher loan expenses. Two related arguments underpin this hypothesis. Firstly, the banks price the information risk associated with the borrower, and firms with poor financial reporting quality tend to face higher costs of bank loans (Kim, Kim, and Yi 2017; Pappas, Walsh, and Xu 2019). As local gambling preferences encourage financial misreporting and fraud (Christensen, Jones, and Kenchington 2018) while also elevating audit risk (Callen and Fang 2020), firms located in areas with higher local gambling preferences are likely to incur greater bank loan prices. Additionally, local gambling preferences also promote risky reporting practices such as tax avoidance (Alharbi et al. 2020), and higher levels of tax avoidance result in higher costs of debt financing (Shevlin, Urcan, and Vasvari 2013; Hasan et al. 2014). Secondly, in the design of loan contracts, lenders typically price various risks of borrowers, including the likelihood of default, risks associated with the borrower's operations, and financing structure (Armstrong, Guay, and Weber 2010; Bharath, Sunder, and Sunder 2008; Luo et al. 2018). These risks may be further amplified in a culture with higher gambling preferences that encourage risky behavior (Kumar, Page, and Spalt 2011). Consequently, a bank may charge higher loan prices for firms located in areas that promote such risky behavior.

The second hypothesis posits that firms in areas with higher gambling preferences enjoy reduced bank loan prices. Two related contentions underpin this hypothesis. Firstly, banks extend credit with the expectation of borrowers achieving successful investments, as such success signifies improved future cash flows and lowers the potential default risk for borrowers. Moreover, firms in areas with higher LGP tend to embrace a risk-taking attitude, and more importantly, these firms are adept at translating risky investments into valuable innovation output (Chen et al. 2014). Evidence from Chen et al. (2014) suggests that these firms are less prone to underinvestment issues. Successful innovation also enables these firms to capture a larger market share and enjoy higher market value (Blundell, Griffith, and Van Reenen 1999; Simeth and Cincera 2016). Consequently, a higher level of innovation output, combined with increased market share and market value, indicates that firms in areas with higher LGP are likely to receive more favorable loan terms.

Secondly, banks are concerned about the severity of agency conflict between shareholders and debtholders that borrowers may present. In leveraged firms, shareholders have incentives to transfer wealth from debtholders to themselves through direct dividend payments, which could potentially reduce the safety net for the lenders. Since firms in counties with higher LGP distribute fewer dividends (Ucar 2016), this is expected to mitigate the agency problem between managers and debtholders. Additionally, firms in areas with higher LGP tend to hold more cash and generate greater value from these cash reserves (Li 2017). Consequently, firms in regions with higher LGP are likely to enjoy more favorable terms in the design of bank loan contracts.

H_1: Local gambling preference increases (decreases) the cost of bank loans.

3. Sample design and summary statistics

3.1. Local gambling preferences (LNCPR) variable

We follow prior studies (Hilary and Hui 2009; Kumar, Page, and Spalt 2011; Chen et al. 2014; Alharbi et al. 2020) and construct our LGP measure as the natural logarithm of the Catholic-to-Protestant ratios at the county level (*LNCPR*). We consider the firm's location in the Loughran-McDonald database to be its historical headquarters[4] and match the county gambling information with each firm's headquarter location (Coval and Moskowitz 1999; Pirinsky and Wang 2006) to obtain firm-level LGP measure.

To create *LNCPR*, we gather Catholic and Protestant population data at the county level from the 'Churches and Church Membership' data available on the Association of Religion Data Archives (ARDA) website. This data file contains county-level statistics, including information on the number of Catholic and Protestant communities and their respective church adherents in the county. This data is collected once every decade, with the last census ending in 2010.[5] In line with previous studies (Hilary and Hui 2009; Kumar, Page, and Spalt 2011), we use linear interpolation to estimate the Catholic and Protestant population data for the intermediate years in each county in the United States.

The economic rationale for using the Catholic-to-Protestant population ratio to capture county-level local gambling preferences is grounded in prior evidence that suggests Catholics, on average, tend to gamble more, while Protestants fervently oppose all forms of gambling (Hoffmann 2000). These differences in religious philosophy between Catholics and Protestants are also reflected in their behaviors (Mikesell 1994; Halek and Eisenhauer 2001; Kumar, Page, and Spalt 2011). For instance, two recent surveys conducted between 1963 and 2007 in the US show that Protestants are less tolerant of gambling compared to Catholics. Empirical evidence from Mikesell (1994) also supports the idea that Catholics have a greater inclination to gamble than Protestants. Kumar (2009) empirically demonstrates that Catholics are more inclined to gamble than Protestants. Additionally, he finds that the local ratio of Catholics to Protestants is significantly correlated with participation in state lotteries and holding stocks with lottery-type features.[6]

3.2. Dependent variable – cost of bank loans

Following prior studies, we measure the cost of bank loans as the natural logarithm of the loan spread (*LSPREAD*). The loan spread is the all-in spread drawn, defined as the amount the borrower pays in basis points over LIBOR or a LIBOR equivalent for the drawn portion of the loan facility, as stated in the Thomson Reuters LPC DealScan database (Graham, Li, and Qiu 2008; Valta 2012; Hasan et al. 2014; Wang, Chiu, and King 2020; Richardson, Taylor, and Obaydin 2020). Hence, *LSPREAD* represents the incremental cost of debt that a firm must pay attributable to its operating and financial risk factors (Hadlock and James 2002; Denis and Mihov 2003; Hasan et al. 2014).

3.3. The sample

We collect data from several sources. From the LPC DealScan, we extract 55,541 unique loan facility-level observations for our sample period. Following prior studies (Bharath, Sunder, and Sunder 2008; Chava, Livdan, and Purnanandam 2008; Bharath et al. 2011; Hasan et al. 2014), we treat each loan facility as an individual loan. We generate 36,665 unique firm-year observations with local gambling preference variables from

Table 1. Sample selection procedure.

	Number of observations
Total unique loan facility-level observations from the LPC DealScan	55, 541
Total number of unique firm-year observations with local gambling variables from American Religion Data Archive (ARDA)	36, 665
After merging with Compustat firm-year sample	19, 736
Only keep firm-year observations with complete gambling info	18, 024
After removing firms with missing loan characteristic info	15, 128
Subtotal of Final loan sample	15, 128

This table presents the sample selection process for the study.

the American Religion Data Archive (ARDA). Firm-level financial and accounting data are drawn from the COMPUSTAT database, and we collect institutional ownership data from the Thomson-Reuters Institutional Holdings database. We merge our sample loan observations from DealScan, gambling preferences from ARDA, and financial data from Compustat. We remove firm-year observations with missing data and drop financial and utility firms (SIC 6000–6999, 4900–4949). Additionally, we exclude firm-year observations when sales and total assets are less than $1 million (Wang, Chiu, and King 2020; Richardson, Taylor, and Obaydin 2020). Overall, our final sample consists of data on 15,128 loan facilities, representing 9,329 firm-year observations from 1985–2010. Table 1 presents the sample selection process for the study. To mitigate the effect of outliers, we apply winsorization to all continuous variables at the 1% and 99% levels.

3.4. Control variables

In line with previous research in the field of bank loans, we incorporate control variables to account for firm-specific factors that may influence a firm's risk in relation to the pricing of bank loans. Specifically, we adopt the approach of Hasan et al. (2014), Chava, Livdan, and Purnanandam (2008), and Bharath et al. (2011) to include several firm-specific characteristics as controls: firm size (*LASSET*), a firm's growth prospects (*MTB*), asset tangibility (*TAN*), firm leverage (*LEV*), profitability (*ROE*), and a modified Altman's Z-score (*ZSCORE*).

Additionally, we introduce loan-specific control variables - loan maturity (*LMAT*) and loan size (*LSIZE*). Given that the prices of bank loans are the result of the equilibrium between bank supply and firm demand, we also control for variables that affect banks' provision of loans to firms to exclude the effect of bank supply of loans. Specifically, we include the level of total bank deposits of the lead lending banks (*LTOTDEP*) to capture the availability of funds by the leading bank and the total size of commercial and industrial loans provided by the lead lending banks (*LCILOAN*) to capture the magnitude of leading activities. *LTOTDEP* and *LCILOAN* indicate potential liquidity and desire for leading, which can influence the cost of bank loans (Ashraf and Shen 2019; Eggertsson et al. 2023). We also control for access to finance, captured by the number of banks where the firm is headquartered (*LNBANK*). A higher number of banks increases competition among banks and can enhance a firm's access to credit, which will drive down the cost of bank loans. Finally, we include the term structure of interest rates (*TERMS*) as the difference between the ten-year government bond yield and the three-month T-bill yield to control for economy-wide expectations and the benchmark for pricing bank loans (Beutler et al. 2020).

To ensure that local gambling preferences are not confounded by other county-level characteristics, we account for county attributes. Following the methodology of Chen et al. (2014), we include controls for religiosity (*REL*), the percentage of married residents (*MARSTA*), the male-to-female resident ratio (*MTFR*), and the minority population (*MINOR*) in the county where firms are headquartered. For a comprehensive understanding of the variables used, please refer to Appendix A, which provides detailed definitions.

3.5. Summary statistics

Panel A of Table 2 presents the summary statistics for the cost of bank loans, local gambling preferences, and various control variables in our total sample. The mean and median values of local gambling preferences (*LNCPR*)

Table 2. Summary statistics.

Panel A: Descriptive statistics for the full sample						
Variables	N	Mean	Standard deviation	First quartile	Median	Third quartile
$LSPREAD_{t}$	15128	5.003	0.776	4.443	5.165	5.617
$SPREAD(BPS)_{t-1}$	15128	178.34	140.45	62.50	150.02	250.12
$LNCPR_{t-1}$	15128	0. 851	0. 581	0. 447	0. 787	1.280
$LASSET_{t-1}$	15128 (9329)	6.442 (6.390)	1.906 (1.903)	5.063 (5.032)	6.430 (6.364)	7.756 (7.688)
MTB_{t-1}	15128 (9329)	3.682 (3.605)	9.910 (9.434)	1.197 (1.208)	2.173 (2.187)	3.897 (3.903)
TAN_{t-1}	15128 (9329)	0.398 (0.395)	0.326 (0.325)	0.165 (0.161)	0.307 (0.302)	0.552 (0.552)
LEV_{t-1}	15128 (9329)	0.301 (0.280)	0.235 (0.221)	0.138 (0.123)	0.276 (0.258)	0.416 (0.394)
ROA_{t-1}	15128 (9329)	0.151 (0.148)	0.201 (0.203)	0.093 (0.091)	0.146 (0.146)	0.212 (0.212)
$ZSCORE_{t-1}$	15128 (9329)	1.912 (1.675)	2.175 (2.102)	0.946 (0.991)	1.735 (1.790)	2.490 (2.576)
$LCILOAN_{t-1}$	15128	16.902	1.276	16.0575	17.069	17.737
$LTOTDEP_{t-1}$	15128	18.580	0.924	17.861	18.696	19.274
$LNBANK_{t-1}$	15128	5.515	0.893	5.003	5.605	6.253
$TERMS_{t-1}$	15128	1.708	1.086	0.868	1.526	2.872
REL_{t-1}	15128	0.539	0.102	0.461	0.544	0.600
$MARSTA_{t-1}$	15128	0.478	0.091	0.439	0.486	0.535
$MTFR_{t-1}$	15128	0.956	0.039	0.928	0.957	0.990
$MINOR_{t-1}$	15128	0.307	0.135	0.202	0.309	0.421
$LMAT(Month)_{t-1}$	15128	45.12	25.49	23.04	48.03	60.12
$LSIZE_{t-1}$	15128	477.504	988.12	55.00	200.00	500.00
Syndicated Loan	15128	0.856	0.350	1.00	1.00	1.00

Panel B: Descriptive statistics by county			
	Mostly Catholic	Mostly Protestant	
	Mean	Mean	Mean Diff.
LSPREAD	5.301	5.019	14.26***

This table presents the summary statistics of the sample observations. Panel A provides the summary statistics for the full sample. We report the firm characteristics at the loan-year level and the firm-year level (in parentheses). Panel B presents the summary statistics for our main variable of interest (*LSPREAD*) among the most Protestant and most Catholic populations by county. The sample period covers 1983 to 2010, and detailed variable definitions are provided in the Appendix. All variables, except for dummies, are winsorized at the 1% threshold level.

are 0.851 (0.787), which is similar to the mean reported by Chen et al. (2014) and Adhikari and Agrawal (2016). The average spread of the loan facility is 178.34 basis points, the average size of the loan contract is $477.50 million, and the average maturity is 3.75 years. Furthermore, 86% of our sample loans are syndicated loans. Our sample loan characteristics align with prior literature (Hasan et al. 2014; Balachandran and Duong 2019). The average firm in our sample has total assets of approximately $627.7 million (with a natural logarithm value of 6.44), a market-to-book ratio of 3.682, a leverage ratio of 0.301, a tangible assets ratio of 0.398, and a Z-score of 1.91. The summary statistics for other facility-level variables are in line with previous studies (Hasan et al. 2014; Balachandran and Duong 2019).

Panel B of Table 2 presents the univariate assessment of the link between LGP and the cost of bank loans by dividing the sample into firms in predominantly Catholic and Protestant counties. We designate counties as Catholic (Protestant) dominant if the Catholic (Protestant) population ranks in the top 25% of the entire sample. The test confirms that the mean difference in loan spread between counties with mostly Catholic and Protestant populations is also statistically significant, providing initial support for a positive relation between local gambling preferences and the cost of bank loans.

4. Main results

We test our contrasting hypothesis using the following regression model:

$$\begin{aligned} LSREAD_{j,i,t} = {} & \alpha_i + \beta_1 * LNCPR_{i,t-1} + \beta_2 * \textit{firm charateristics}_{i,t-1} \\ & + \beta_2 * \textit{ loan charateristics}_{i,t-1} + \beta_4 * \textit{ Macro charateristics}_{i,t-1} \\ & + \beta_5 * \textit{ Other fixed effects}_{i,t-1} + \varepsilon_{i,t}. \end{aligned} \quad (1)$$

In the above specification, *LSPREADj,i,t* represents the natural logarithm of the spread item drawn from the DealScan database for loan facility *j* obtained by the i^{th} firm in year *t*. *LNCPR measures* local gambling preferences in the firms' headquarters county at year t−1 and represents the main independent variable of interest. We lagged all independent variables by one year to mitigate the reverse causality issue. Additionally, we incorporate control variables to account for firm, loan, and country-level heterogeneity. We estimate four different models. In Model 1, we perform a regression of *LSPREAD* on *LNCPR* without any control variables. In Model 2, we introduce all standard firm-related control variables. In Model 3, we further extend our control by including additional loan characteristics such as size and maturity. We also control for additional variables to isolate the effect of bank supply. Lastly, in Model 4, we add the county-level variables in conjunction with the control variables from Models 1 to 3. For all regression analyses, we account for loan type-, syndication-, and loan purpose-fixed effects, as well as year- and industry-fixed effects. We also employ standard error clustering at the firm levels.[7] Appendix A provides detailed definitions of the variables used.

We present our main results in Table 3. The results show that local gambling preferences (*LNCPR*) have a positive and significant relationship with the cost of bank loans (*LSPREAD*) across all four model specifications. Our findings suggest that a higher local gambling culture in the county where the firm is headquartered significantly influences lenders' assessments of firms' overall risk, resulting in a higher cost of bank loans. Our results are economically significant, as well. For instance, the coefficient estimate on (*LNCPR*) in Model 4 is 0.064. Given that the average loan spread of the sample firms is 178.34 basis points, the economic magnitude of the coefficient translates into a 6.63 basis points ($= 0.064 \times 0.581 \times 178.34$bps) increase in loan spread.

Regarding the interest amount, with a mean loan size of about $477.504 million and an average loan maturity of around 3.5 years, a one-standard-deviation increase in gambling preferences is associated with about $1.108 million ($= 477.504 \times 0.000663 \times 3.5$) in additional total interest cost over the average loan maturity. The economic significance of our findings suggests that lenders pay significant attention to borrowers' soft information captured by LGP when assessing credit risk. Overall, these results support a positive relationship between LGP and the cost of bank loans.

Concerning the control variables, the estimated coefficients on *LASSET* and *MTB* consistently display a negative and significant relationship across all models, implying that larger and rapidly growing companies incur lower loan costs. The estimated coefficient on *LEV* consistently demonstrates a positive and significant relationship in all models, suggesting that firms with higher financial risk tend to face higher costs for their bank loans. In all models, the estimated coefficient on *ROE* consistently appears negative and significant, indicating that profitable firms enjoy reduced borrowing costs. The sign and significance of the other control variables align with the existing literature (Balachandran and Duong 2019; Hasan et al. 2014). We also find that the terms structure of interest rate increases the cost of bank loans since longer-term loans generally carry higher interest rates to compensate for increased risk and uncertainty over time. Furthermore, consistent with the view that higher supply will reduce loan pricing, we find that a higher level of deposit is negatively related to the cost of bank loans.

5. Endogeneity

There is a concern that the results could be influenced by unobserved omitted factors that affect both LGP and the cost of bank loans. Additionally, the endogeneity of firms' location decisions is another potential issue. Hence, our baseline result might be spurious. To mitigate these concerns, we follow prior literature (Adhikari and Agrawal 2016; Hasan et al. 2017) and employ several approaches in our empirical design, as discussed below.

5.1. Instrumental variable analysis

We address concerns about potential bias from unobserved omitted variables by employing an instrumental variable approach. Specifically, we use historical gambling preference, represented as the logarithm of the ratio of Catholic to Protestant members in each county reported in 1952 (*LNCPR1952*), as the instrument for the contemporaneous LGP measure (*LNCPR*). This approach aligns with the methods used by Adhikari and Agrawal

Table 3. Effect of gambling on loan price: Baseline results.

	LSPREAD			
	(1)	(2)	(3)	(4)
$LNCPR_{t-1}$	0.049***	0.064***	0.064***	0.064***
	(2.84)	(4.02)	(3.53)	(3.34)
$LASSET_{t-1}$		−0.134***	−0.078***	−0.078***
		(−17.18)	(−7.08)	(−7.04)
MTB_{t-1}		−0.002***	−0.002***	−0.002***
		(−3.38)	(−2.99)	(−3.08)
TAN_{t-1}		−0.019	−0.007	−0.010
		(−0.66)	(−0.24)	(−0.35)
LEV_{t-1}		0.226***	0.233***	0.236***
		(3.88)	(4.04)	(4.09)
ROE_{t-1}		−0.250***	−0.229***	−0.228***
		(−4.23)	(−4.51)	(−4.50)
$ZSCORE_{t-1}$		−0.016	−0.015*	−0.015
		(−1.47)	(−1.67)	(−1.61)
$LMAT_{t-1}$			−0.080***	−0.080***
			(−5.57)	(−5.55)
$LSIZE_{t-1}$			−0.082***	−0.082***
			(−9.94)	(−9.95)
$LCILOAN_{t-1}$			0.020	0.025
			(1.28)	(1.59)
$LTOTDEP_{t-1}$			−0.033	−0.037*
			(−1.64)	(−1.79)
$LNBANK_{t-1}$			−0.004	−0.012
			(−0.32)	(−0.89)
$TERMS_{t-1}$			3.045***	2.994***
			(7.49)	(7.31)
REL_{t-1}				0.028
				(0.30)
$MARSTA_{t-1}$				0.016
				(0.13)
$MTFR_{t-1}$				0.489*
				(1.81)
$MINOR_{t-1}$				0.016
				(0.18)
CONSTANT	5.300***	5.925***	−1.256	−1.574
	(53.08)	(56.24)	(−1.00)	(−1.22)
Year- and industry-fixed effects	Yes	Yes	Yes	Yes
Loan type-, syndication- and purpose-fixed effects	Yes	Yes	Yes	Yes
Rating-fixed effects	Yes	Yes	Yes	Yes
Observations	Yes	Yes	Yes	Yes
Adjusted R-squared	0.490	0.546	0.559	0.559
N	15128	15128	15128	15128

This table presents the results regarding the impact of a firm's local gambling preferences on loan spread. All regressions include controls for industry-, year-, loan type-, syndication-, purpose-, and rating-fixed effects. The t-statistics are presented in parentheses, with standard errors clustered at the firm level. Significance levels are denoted as ***, **, and * for significance at the 1%, 5%, and 10% levels, respectively. Detailed definitions of variables used in the analysis are provided in the Appendix.

(2016) and is also consistent with the approaches of Hilary and Hui (2009) and Jiang et al. (2018). *LNCPR1952*, as an instrument, satisfies both the relevance and exclusion conditions.

Regarding relevance, a county's historical religious composition is likely to be correlated with its current religious composition, as religious beliefs tend to persist across generations, with older generations passing down their religious beliefs to newer ones. Hilary and Hui (2009) and Jiang et al. (2018) also note that when controlling for all exogenous variables, historical local characteristics (instrumental variables) tend to correlate with the current period's local characteristics (the endogenous variable).

However, in terms of exclusion, any correlation between potential omitted variables (such as time-varying growth opportunities, competition, or financing choice) and *LNCPR* should not persist over time. Specifically, our LGP sample begins in 1980, while *LNCPR1952* captures cross-sectional variation in religious composition from 28 years ago. Therefore, there is no obvious reason why past local gambling preference would impact current loan pricing behavior, except through its potential effects on the current period's local gambling preference.[8] We have used *LNCPR1952* since ARDA commenced the collection of county-level church membership data across various religious denominations in the United States.

We report the IV regression results in Panel A of Table 4. Column 1 presents the first-stage results where *LNCPR* is the dependent variable and *LNCPR1952* is the instrument variable. Consistent with Adhikari and Agrawal (2016), our results indicate that *LNCPR1952* positively affects *LNCPR*.[9] Column 2 in Panel A presents the second-stage regression result. The instrumented *LNCPR* variable positively and significantly relates to loan spread (*LNSPREAD*) at the 5% significance level. Overall, our instrument variable regression result further supports our main findings.

We also perform instrument validity tests. First, we conduct the Durbin-Wu-Hausman test to examine whether the Catholic-to-Protestant ratio (*LNCPR*) is indeed endogenous. The Durbin-Wu-Hausman $\chi 2$ statistic is 9.632, indicating that *LNCPR* has an endogenous relationship with loan spread and thus supporting the use of instrumental variable regression. Secondly, we assess the sufficiency of our instrument through a weak-identification test using the Cragg-Donald test. This test can assess if the model is correctly identified and is applicable when there is one endogenous variable and one instrument in the model (Baum, Schaffer, and Stillman 2007). The Cragg-Donald Wald F statistic is 7263.32 and significant, suggesting the adequacy of our instrument variable. Furthermore, the F-test of joint significance also confirms the sufficiency of our instrument.

5.2. Matching analysis

We employ propensity score matching (PSM) techniques to substantiate our primary findings. The PSM approach can mitigate the influence of confounding factors and yield a more accurate treatment effect on outcomes (Rosenbaum 1987). Importantly, this approach does not necessitate a distinct source of exogenous variation for identification (Roberts and Whited 2013) and enables us to minimize bias stemming from functional form misspecification (Armstrong, Guay, and Weber 2010).

To execute PSM estimation, we divide our sample firms into high and low *LNCPR* groups based on the sample median. The high *LNCPR* firms form our treatment group, while the low *LNCPR* firms constitute our control group. We create a robust control group for each treatment firm annually by employing one-to-one matching of the nearest neighbor with replacement, using our baseline covariates. In Panel B of Table 4, we present the quality of our matching process by comparing the characteristics of treatment (high *LNCPR*) firms with control (low *LNCPR*) firms. The results indicate that the mean values of our covariates are similar between treatment and control firms, except for the mean value of the cost of bank loans (*LSPREAD*), which exhibits a significant difference. In Panel C, we present the results of a formal regression analysis using our matched sample. We find that *LNCPR* exerts a positive and statistically significant influence on the cost of bank loans (*LSPREAD*).

Next, we also employ entropy balancing to further ensure that our results are driven by differences in religiosity and not by other confounding factors. Chapman, Miller, and White (2019) argue that the entropy-balancing technique has certain advantages over the propensity-score-matching method. To do this, we classify firms into high- or low-gambling preference groups (*HIGH_LNCPR*). The *HIGH_LNCPR* takes the value of 1 if a firm's local gambling preference is above the 75th percentile, and 0 if it is below the 25th percentile. The control group (low-gambling preference group) and the treatment group (high low-gambling preference group) are matched on the first moment of the key covariates, including industry, firm characteristics, and county characteristics (same as baseline covariates) using a maximum-entropy reweighting scheme (see, e.g. Hainmueller and Xu 2013). This technique assigns weights to control observations to ensure that the distributional properties of the treatment group and the post-weighting control group are virtually identical. Using the reweighted sample, we regress the cost of a bank loan on the *HIGH_LNCPR* dummy variable while controlling for all baseline controls. We report the result in Model 2 of Panel C. We find that the coefficient on the *HIGH_LNCPR* dummy is significant, suggesting that compared to control firms, the cost of a bank loan increases with local gambling preference for matched control firms.

Table 4. Endogeneity.

Panel A: Instrument variable regression

	First stage	Second stage
	LNCPR$_{t-1}$	*LSPREAD*
	(1)	(2)
LNCPR1952$_{t-1}$	0.566***	
	(80.30)	
LNCPR$_{t-1}$		0.769***
		(3.84)
LASSET$_{t-1}$	0.019***	−0.081***
	(5.96)	(−16.88)
MTB$_{t-1}$	−0.001	−0.001***
	(−0.79)	(−3.84)
TAN$_{t-1}$	−0.021*	−0.008
	(−1.71)	(−0.48)
LEV$_{t-1}$	−0.461***	0.200***
	(−3.08)	(9.28)
ROE$_{t-1}$	−0.019	−0.240***
	(−01.08)	(−9.11)
ZSCORE$_{t-1}$	−0.001***	−0.031***
	(−2.94)	(−9.60)
LMAT$_{t-1}$	0.004	−0.081***
	(0.54)	(−8.71)
LSIZE$_{t-1}$	−0.002	−0.079***
	(−0.61)	(−16.80)
LCILOAN $_{t-1}$	−0.022	0.025***
	(−3.46)	(2.77)
LTOTDEP $_{t-1}$	12.228	−0.041***
	(15.04)	(−3.21)
LNBANK $_{t-1}$	−0.136***	−0.135
	(−30.41)	(−1.65)
TERMS $_{t-1}$	−0.608***	2.987***
	(−4.51)	(15.34)
REL$_{t-1}$	1.341***	−0.016
	(40.07)	(−0.27)
MARSTA$_{t-1}$	0.971***	0.060
	(18.96)	(0.84)
MTFR$_{t-1}$	1.412***	0.060***
	(18.96)	(2.68)
MINOR$_{t-1}$	0.049***	0.049
	(1.66)	(1.05)
Year- and industry-fixed effects	Yes	Yes
Loan type-, syndication- and purpose-fixed effects	Yes	Yes
Rating-fixed effects	Yes	Yes
F-stats	143.86***	
Test of endogeneity: (Durbin-Wu-Hausman stats)	9.632***	
Weak identification test: (Cragg-Donald Wald F statistic)	7623.32***	
Observations	15,022	15,022
Adjusted R-squared	0.456	0.512

Panel B: Quality of Propensity score matching sample.

	Treated (N = 2,174)(High_LNCPR = 1)	Control (N = 2,174) (High_LNCPR = 0)	Diff.	t-stats
Target variable				
LSPREAD$_t$	5.012	4.873	0.138	2.643***
Matching variables				
LASSET$_{t-1}$	6.452	6.428	0.024	0.42
MTB$_{t-1}$	3.453	3.449	0.004	0.02
TAN$_{t-1}$	0.392	0.378	0.014	1.47
LEV$_{t-1}$	0.293	0.297	−0.004	−0.61
ROE$_{t-1}$	0.151	0.148	0.003	0.55
ZSCORE$_{t-1}$	1.693	1.695	−0.002	−0.03
LMAT$_{t-1}$	3.617	3.638	−0.022	−0.97
LSIZE $_{t-1}$	18.378	18.355	0.023	0.42

(*continued*)

Table 4. Continued

	Treated (N = 2,174)(High_LNCPR = 1)	Control (N = 2,174) (High_LNCPR = 0)	Diff.	t-stats
$LCILOAN_{t-1}$	16.879	16.790	0.089	1.33
$LTOTDEP_{t-1}$	18.557	18.500	0.057	1.94
$LNBANK_{t-1}$	5.522	5.535	−0.013	−0.49
$TERMS_{t-1}$	1.753	1.721	0.032	0.97
REL_{t-1}	0.534	0.530	0.003	1.09
$MARSTA_{t-1}$	0.478	0.480	−0.002	−0.74
$MTFR_{t-1}$	0.957	0.958	−0.001	-1.12
$MINOR_{t-1}$	0.314	0.312	0.003	0.64

Panel C: Matching Regression

	LSPREAD PSM (1)	*LSPREAD* Entropy Balancing (2)
$LNCPR_{t-1}$	0.048**	
	(2.20)	
$HIGH\_LNCPR_{t-1}$		0.052***
		(4.01)
CONSTANT	−0.530	6.031***
	(0.31)	(26.10)
Year- and industry-fixed effects.	Yes	Yes
All baseline control	Yes	Yes
Loan type-, syndication-, and purpose-fixed effects	Yes	Yes
Rating-fixed effects	Yes	Yes
Observations	5686	7569
Adjusted R-squared	0.561	0.626

Panel D: Change analysis.

	Δ *LSPREAD*
Δ $LNCPR_{t-1}$	0.034***
	(4.49)
Δ $LASSET_{t-1}$	−0.087***
	(−9.75)
Δ MTB_{t-1}	−0.033***
	(−5.04)
Δ TAN_{t-1}	−0.001
	(−0.74)
Δ LEV_{t-1}	0.294***
	(7.94)
Δ ROE_{t-1}	−0.139***
	(−3.03)
Δ $ZSCORE_{t-1}$	−0.030***
	(−5.42)
Δ $LMAT_{t-1}$	−0.023***
	(−2.83)
Δ $LSIZE_{t-1}$	−0.074***
	(−9.21)
Δ $LCILOAN_{t-1}$	0.011*
	(1.65)
Δ $LTOTDEP_{t-1}$	−0.016*
	(−1.78)
Δ $LNBANK_{t-1}$	0.001
	(0.35)
Δ $TERMS_{t-1}$	0.001
	(0.23)
Δ REL_{t-1}	−0.460***
	(−3.78)
Δ $MARSTA_{t-1}$	−0.727***
	(−4.23)
Δ $MTFR_{t-1}$	0.924**
	(2.43)
Δ $MINOR_{t-1}$	0.157

(*continued*)

Table 4. Continued

	Δ *LSPREAD*
	(1.51)
CONSTANT	−1.454***
	(−18.33)
Year- and industry-fixed effects	Yes
Rating-fixed effects	Yes
Observations	9,312
Adjusted R-squared	0.170

This table consists of four panels. Panel A presents the two-stage least-square (2SLS) tests for local gambling preferences and the cost of bank loans. As per Adhikari and Agrawal (2016), we utilize the Catholic to Protestant members ratio in 1952 (*LNCPR1952*) as the instrument for LNCPR, which is the first year ARDA collected county-level data. Columns (1) and (2) present the results of the first-stage regressions. Panel B presents the quality of propensity score matching. Panel C presents a formal test using propensity score matching and entropy balancing samples. Panel D reports the results of the change regression. All regressions incorporate controls for industry-, year-, loan type-, syndication-, purpose-, and rating-fixed effects. The t-statistics are presented in parentheses, with standard errors clustered at the firm level. Significance levels $***$, $**$, and $*$ denote statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed definitions of variables used in the analysis are provided in the Appendix.

5.3. Change analysis

We employ change analysis to further validate the causal association between local gambling preferences (*LNCPR*) and the cost of bank loans (*LSPREAD*). The change analysis effectively removes firm-level cross-sectional variations, enabling us to concentrate on time-series variation. To execute this analysis, we transform our level variables into year-on-year change variables, incorporating the same control variables and fixed effects as presented in the baseline results in Table 3. Since our data operates at the loan facility level, we first average the loan characteristics (*LSPREAD*, *LMAT*, and *LSIZE*) at the firm-year level before calculating the change values for these variables. The variable of interest here is the change in Δ *LNCPRt-1*, which represents a purely exogenous shock in *LNCPR* resulting from shifts in the population composition, specifically, the movement of a Catholic population relative to a Protestant population into or out of a county. This change is unlikely to have a direct connection with the cost of bank loans. Employing the change regression and controlling for year-, industry-, and country-fixed effects, the results in Panel D of Table 4 demonstrate a positive and significant relationship between the change in local gambling preferences ($\Delta\ LNCPR_{t-1}$) and the change in the cost of bank loans ($\Delta\ LSPREAD_t$).

5.4. Difference-in-differences (relocation) analysis

In this section, we conduct additional analysis to ensure that the reported results indeed reflect a potential causal association. While it is highly implausible that the cost of bank loans for firms determines local gambling preferences (LGP), the presence of reverse causality might be a minor concern in our context, especially given our lagged estimation. Nevertheless, it is reasonable to consider that unobserved variables may jointly influence both local gambling preferences and the cost of bank loans. Therefore, we modify the approach of Hasan et al. (2017) and utilize firms' relocation events as an exogenous shock to local gambling preferences.[10] We identify these relocation decisions when a firm reports its headquarters' addresses in two different counties in two consecutive years. If the firm relocates to a county with higher (lower) local gambling preference, we anticipate observing an increase (decrease) in the costs of bank loans.

We identify 79 firms with multiple headquarters relocations. Among these, 57 firms have a relocation that increases their gambling preference, and 22 have a relocation that decreases their gambling preference. Based on this sample, we estimate the following regression model:

$$\begin{aligned} LSPREAD_{j,i,t} = {} & \alpha_i + \beta_1 * \ LNCPR_{i,t-1} + \beta_2 * \ Increase_{i,t-1}\ (or\ Decrease_{i,t-1}) \\ & + \beta_3 * \ LNCPR_{i,t-1} * \ Increase_{i,t-1}\ (or\ Decrease_{i,t-1}) + \beta_i * \ All\ control\ varibles_{i,t-1} \\ & + \partial_i * \ Other\ fixed\ effects_{i,t-1} + \varepsilon_{i,t} \end{aligned}$$

In the above specifications, *Increase* is a dummy variable that is equal to one if the firm had headquartered relocation to a place higher than its current location and zero for the control group of firms whose headquarters are located in areas with lower gambling preferences based on the sample median firm, excluding firms with locations has resulted in a move to lower gambling preference area. Similarly, *Decrease* is a dummy variable that is equal to one if the firm had relocated to a place with lower gambling preferences than its current location and zero for the control group of firms whose headquarters are located in areas with higher gambling preferences based on the sample median firm, excluding firms that location has resulted in a move to higher gambling preference area. The results are presented in Panel Table 5. Our results in Table 5 show that firms relocated to counties with higher LGP experience higher loan spreads after the relocation relative to firms that did not experience relocation and *vice versa*. The coefficient estimates on the interactive term *LNCPR∗Increase(Decrease)* are positively (negative) significant at the 5% level for both single and multiple moves models. These outcomes provide further confirmation that relocating headquarters to an area with higher (lower) gambling preferences results in increased (decreased) costs of bank loans relative to control firms. Hence, the findings in this section reinforce the main findings.

6. Robustness tests

This section presents several robustness checks to further substantiate the main findings. In Panel A of Table 6, we examine the robustness of our results using various model specifications. Given that our local gambling preferences represent a county-level measure, we employ county-fixed effect regression and adjust the standard errors for clustering at the county level as opposed to the firm level. We present the results in Model (1). Since the cost of bank loans could be influenced by the presence of time-invariant firm-specific omitted variables, we reestimate our baseline model using firm- and year-fixed effect regression. This approach helps us address potential issues related to omitted variable bias, where the observed relationship between local gambling preferences and the cost of bank loans. We report the findings in Model (2). Furthermore, we run five different specifications using firm- and year-fixed effect regression effect models. Specifically, we mitigate the look-ahead bias associated with linear interpolation (Chen et al. 2014) by employing the survey year sample, which captures only actual data. We present the results in Model (3).

Previous studies indicate that gambling is more prevalent in poor and young counties. For example, Abbott and Cramer (1993) and Pryor (2008) show that the magnitude of gambling expenses decreases with increased per capita income, indicating that gambling is more prevalent among poor counties. In addition, Moore and Ohtsuka (1997) and Derevensky and Gupta (2004) find that people reduce their gambling tendencies with increasing age. Hence, we generate a binary variable, 'poor county,' that takes the value of one (zero) if a county's median income is less (more) than the median income of the population of our entire sample counties. Similarly, we generate a binary variable, 'young county,' that takes the value of one (zero) if the median age of a county's population is less (more) than the median age of our entire sample counties. Afterward, in Models (4) and (5), we rerun the baseline analysis, excluding the sample of poor and young counties. We also rerun the baseline analysis by dropping the 2007–2008 financial crisis sample and present the results in Model (6). In Model (7), we control for social capital since Hasan et al. (2017) find that social capital lowers the cost of bank loans.

Our results in all these specifications support our baseline results. Specifically, the effect of local gambling preferences on the cost of bank loans is positive and statistically significant at a 1% level in both county- and firm-fixed effects models. Relatedly, we also examine whether there is a triggering point for the impact of gambling preference to kick in. We address this estimating piecewise line regression that allows different slopes on local gambling preference for different ranges of gambling preference. Unablated results show that the effect of local gambling preference is strongest in the lower tail, followed by the higher tail, while the marginal effect is lowest in the medium ranges. Overall, our results are robust in controlling for unobserved county and firm characteristics, utilizing only survey year samples, excluding counties with poor and young populations, excluding samples covering the global financial crisis period, and controlling for social capital.

In Panel B, we employ seven alternative measures of local gambling preference.[11] Firstly, we utilize the natural logarithm of the total number of bars (*LNBAR*) at the county level as our alternative proxy for local gambling preference. We collect the *LNBAR* data from the National Neighborhood Data Archive (NANDA)[12] for our

Table 5. Effect of gambling on loan price: Relocation analysis.

	LSPREAD	*LSPREAD*
	(1)	(2)
LNCPR $_{t-1}$	−0.021	0.024
	(−0.29)	(0.42)
INCREASE	−0.161*	
	(−1.76)	
INCREASE ∗ *LNCPR* $_{t-1}$	0.216**	
	(2.27)	
DECREASE		0.354**
		(2.12)
DECREASE ∗ *LNCPR* $_{t-1}$		−0.616**
		(−2.11)
LASSET $_{t-1}$	−0.078***	−0.101***
	(−5.48)	(−6.04)
MTB $_{t-1}$	−0.000	−0.003***
	(−0.58)	(−4.25)
TAN $_{t-1}$	0.035	−0.080*
	(0.85)	(−1.77)
LEV $_{t-1}$	0.185**	0.262***
	(2.11)	(4.78)
ROE $_{t-1}$	−0.248**	−0.270***
	(−2.43)	(−4.53)
ZSCORE $_{t-1}$	−0.031*	−0.011
	(−1.92)	(−1.28)
LMAT $_{t-1}$	−0.104***	−0.084***
	(−5.34)	(−3.70)
LSIZE $_{t-1}$	−0.091***	−0.084***
	(−8.22)	(−6.66)
LCILOAN $_{t-1}$	0.032	−0.002
	(1.10)	(−0.10)
LTOTDEP $_{t-1}$	−0.081**	0.005
	(−2.37)	(0.18)
LNBANK $_{t-1}$	−0.012	−0.002
	(−0.65)	(−0.09)
TERMS $_{t-1}$	4.430***	2.474***
	(7.14)	(4.79)
REL $_{t-1}$	−0.079	0.149
	(−0.48)	(0.83)
MARSTA $_{t-1}$	0.533**	−0.110
	(2.23)	(−0.61)
MTFR $_{t-1}$	0.293	0.594
	(0.60)	(1.56)
MINOR $_{t-1}$	0.244*	−0.083
	(1.80)	(−0.55)
CONSTANT	−4.982**	−0.102
	(−2.56)	(−0.06)
Year- and industry-fixed effects	Yes	Yes
Loan type and syndication controls	Yes	Yes
Purpose controls	Yes	Yes
Rating controls	Yes	Yes
Observations	7696	7432
Adjusted R-squared	0.594	0.576

This table presents the effect of headquarters relocation to explore the relationship between gambling preferences and loan spread. In all regressions, we include controls for industry-, year-, loan type-, syndication-, purpose-, and rating-fixed effects. The t-statistics are presented in parentheses, with standard errors clustered at the firm level. Significance levels ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed definitions of variables used in the analysis are provided in the Appendix.

sample period. Secondly, we incorporate the local gambling culture index (*GAMINDX*) at the state level as yet another alternative measure. Specifically, we collect information on the legality of eight different types of gambling (charitable, pari-mutuel, state lottery, commercial, tribal and racetrack, online, and sports betting) across all 50 states.[13] Following Adhikari and Agrawal (2016), we exclude charitable gambling since it is not

Table 6. Effect of gambling on loan price: Robustness tests.

Panel A: Alternative specifications with fixed effect models

	LSPREAD						
	County-fixed effects	Firm-fixed effect models					
	Full sample	Full sample	Survey year	Excl. poor county	Excl. young county	Excl. GFC	Incl. social cap
Specifications	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LNCPR$_{t-1}$	0.064***	0.048***	0.082*	0.048*	0.048***	0.084***	0.047*
	(3.34)	(4.48)	(1.85)	(1.71)	(3.37)	(3.51)	(1.75)
LNSCA$_{t-1}$							−0.037**
							(−2.46)
LASSET$_{t-1}$	−0.078***	−0.012	−0.053*	−0.088***	−0.088***	−0.118***	−0.101***
	(−7.04)	(−0.69)	(−1.75)	(−8.05)	(−14.90)	(−12.26)	(−10.25)
MTB$_{t-1}$	−0.002***	−0.001	−0.002	−0.002***	−0.002***	−0.002***	−0.001**
	(−3.08)	(−1.25)	(−1.02)	(−3.16)	(−4.41)	(−2.94)	(−2.22)
TAN$_{t-1}$	−0.010	−0.007	−0.085	0.030	0.030	0.007	0.004
	(−0.35)	(−0.15)	(−1.08)	(0.69)	(1.17)	(0.22)	(0.13)
LEV$_{t-1}$	0.236***	0.125**	0.163	0.338***	0.338***	0.472***	0.379***
	(4.09)	(2.46)	(1.33)	(3.55)	(12.74)	(5.99)	(5.19)
ROE$_{t-1}$	−0.228***	−0.219**	−0.032	−0.251***	−0.251***	−0.245***	−0.242***
	(−4.50)	(−1.99)	(−0.27)	(−3.89)	(−7.57)	(−4.83)	(−3.88)
ZSCORE$_{t-1}$	−0.015	−0.008	−0.027**	−0.008	−0.008***	−0.014	−0.029**
	(−1.61)	(−1.13)	(−2.21)	(−1.06)	(−3.05)	(−1.22)	(−2.27)
LMAT$_{t-1}$	0.025	0.005	−0.099**	0.018	0.018	0.024	0.031*
	(1.59)	(0.25)	(−2.52)	(0.86)	(1.53)	(1.25)	(1.80)
LSIZE$_{t-1}$	−0.037*	−0.004	0.105**	−0.029	−0.029*	−0.040	−0.040*
	(−1.79)	(−0.19)	(2.05)	(−1.04)	(−1.82)	(−1.62)	(−1.75)
LCILOAN $_{t-1}$	−0.012	−0.561***	−0.005	−0.030	−0.030***	−0.023	−0.030*
	(−0.89)	(−8.66)	(−0.19)	(−1.48)	(−3.22)	(−1.42)	(−1.70)
LTOTDEP $_{t-1}$	2.994***	2.213**	2.719	2.032	2.032	−0.353***	0.298***
	(7.31)	(2.55)	(1.32)	(1.27)	(1.48)	(−14.95)	(11.54)
LNBANK $_{t-1}$	0.028	−0.236	−0.146	0.042	0.042	−0.008	0.073
	(0.30)	(−0.80)	(−0.60)	(0.30)	(0.55)	(−0.08)	(0.62)
TERMS $_{t-1}$	0.016	−3.677**	0.056	−0.124	−0.124	0.099	−0.083
	(0.13)	(−2.19)	(0.18)	(−0.72)	(−1.28)	(0.67)	(−0.50)
REL$_{t-1}$	0.489*	−1.921	−0.185	1.035**	1.035***	0.877***	0.712**
	(1.81)	(−1.23)	(−0.29)	(2.29)	(3.89)	(2.69)	(2.00)
MARSTA$_{t-1}$	0.016	−1.004	0.357*	−0.054	−0.054	0.136	−0.124
	(0.18)	(−1.39)	(1.83)	(−0.36)	(−0.80)	(1.19)	(−0.91)
MTFR$_{t-1}$	−0.080***	−0.045***	−0.066*	−0.033	−0.033**	−0.080***	−0.041**
	(−5.55)	(−2.93)	(−1.93)	(−1.59)	(−2.24)	(−5.42)	(−2.45)
MINOR$_{t-1}$	−0.082***	−0.073***	−0.066***	−0.103***	−0.103***	−0.091***	−0.107***
	(−9.95)	(−7.75)	(−2.77)	(−10.90)	(−15.80)	(−10.53)	(−12.83)
CONSTANT	−1.559	7.269*	−0.535	1.301	1.301	7.508***	7.240***
	(−1.21)	(1.86)	(−0.08)	(0.26)	(0.30)	(18.95)	(16.17)
Firm- and year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	No	Yes	Yes	Yes	Yes	Yes
Loan type controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Syndication controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15128	14448	1376	7566	7566	13740	11185
Adjusted R–squared	0.559	0.730	0.707	0.526	0.526	0.507	0.537

Panel B: Alternative measures of local gambling

	LSPREAD						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
LNBAR$_{t-1}$	0.088***						
	(7.86)						
GAMINDX$_{t-1}$		0.024***					
		(3.74)					
Lottery Per Capita (LPC$_{t-1}$*)*			0.000**				
			(2.30)				

(*continued*)

Table 6. Continued

	LSPREAD						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High Percap Lottery$_{t-1}$				0.056***			
				(3.16)			
CPR_{t-1}					0.019***		
					(2.76)		
Catholic ($CATH_{t-1}$)						0.247***	
						(3.10)	
Protestant ($PROT_{t-1}$)							−0.289***
							(−3.89)
All baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year- and industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type, purpose controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Syndication controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rating-fixed controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10398	15128	13060	13060	15128	15128	15128
Adjusted R-squared	0.651	0.560	0.591	0.592	0.559	0.559	0.560

This table provides the regression results of robustness tests for examining the relationship between local gambling preferences and loan spread. Panel (A) reports the baseline results using different model specifications all using firm-fixed effect except column 1. Panel B presents the results using alternative measures of local gambling using firm-fixed effect regression. In all cases, the t-statistics are presented in parentheses, with standard errors clustered at the firm level. Significance levels ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed definitions of variables used in the analysis are provided in the Appendix.

aimed at personal gain. Additionally, we omit the state lottery since almost all firms in our sample operate in states where the lottery is legal. Using the remaining six types of gambling, we construct *GAMINDX* by counting the types of gambling permitted in each state, resulting in *GAMINDX* values ranging from 0 to 6.

Thirdly, in line with Christensen, Jones, and Kenchington (2018), we employ the lottery per capita (LPC) measure, calculated as total lottery spending divided by the state population where the firm is headquartered, as another alternative measure. This data is collected from the U.S. Census. Fourthly, we use 'high per capita lottery' as an alternative proxy for local gambling preferences, representing states where actual gambling activity per capita falls in the top 25% of the entire distribution. Fifthly, we measure the actual ratio of Catholics to Protestants in the county where the firm is headquartered without applying the natural logarithm (*CPR*). Finally, we assess whether the types of gambling preference matter and focus on the ratio of the Catholic population to the total population (*CATH*) in firms' headquarters counties and, similarly, the Protestant population ratio (*PROT*) relative to the total population in firms' headquarters counties.

The results across columns (1) to (7) in Panel B corroborate the baseline findings when using various alternative measures of local gambling preference. This suggests that the choice of measurement for local gambling preferences does not influence the baseline results.

7. Channel analysis

In this section, we examine the role of various local channels, such as information risk, excessive risk-taking, and crash risk.

7.1. Information risk channels

The quality of information released by corporate managers to the market is relevant to the cost of bank loans (Armstrong, Guay, and Weber 2010; Bharath, Sunder, and Sunder 2008; Kim, Kim, and Yi 2017; Ertugrul et al. 2017; Pappas, Walsh, and Xu 2019). Similarly, risky tax avoidance also increases information asymmetry between the firm and its lenders, consequently raising the cost of debt financing (Hasan et al. 2014; Shevlin, Urcan, and Vasvari 2013). As a result, we investigate whether LGP is positively associated with proxies for information risk (such as earnings quality and tax avoidance), which would provide additional evidence supporting the economic rationale for the link between LGP and loan spread.

To examine this hypothesis, we employ the yearly abnormal accruals developed by Rajgopal and Venkatachalam (2011). This measure, which is a modification and enhancement of approaches introduced by Dechow and Dichev (2002) and Francis et al. (2005), serves as our indicator of earnings quality (*EARQUA*).[14] Regarding tax avoidance activity, we employ a long-run cash-effective tax rate (*LCETR*) method, as suggested by Hasan et al. (2014). Specifically, *LCETR* is computed as cash tax paid (*TXPD*) divided by the sum of pre-tax book income (*PI*) and special items (*SPI*) over a 3-year period. If the denominator in this calculation is zero or negative, *LCETR* is designated as missing. To facilitate interpretation (where higher values of *LCETR* indicate greater tax avoidance), we multiply *LCETR* by −1.

We run the *EARQUA* and *LCETR* models, with *LNCPR* as the primary independent variable. In both the *EARQUA* and *LCETR* specifications, we incorporate standard firm and country-level control variables. Additionally, we include year- and industry-fixed effects in the models. We present our findings in Models (1) and (2) of Panel A of Table 7. We observe that *LNCPR* is positively associated with poor earnings quality (*EARQUA*) and a higher long-run cash effective tax rate (*LCETR*), suggesting that firms located in areas with higher local gambling preferences tend to exhibit poorer information quality and employ riskier tax strategies.

Next, we examine the roles of *EARQUA* and *LCETR* as potential channels through which *LNCPR* affects the cost of bank loans. We present the results in Models (3) and (4), Panel A of Table 8. In line with prior literature (Armstrong, Guay, and Weber 2010; Bharath, Sunder, and Sunder 2008; Kim, Kim, and Yi 2017; Ertugrul et al. 2017; Pappas, Walsh, and Xu 2019; Hasan et al. 2014; Shevlin, Urcan, and Vasvari 2013), our findings demonstrate that both *EARQUA* and *LCETR* positively explain the cost of bank loans in our sample firms. Collectively, our results in Models 1 – 4 confirm that *EARQUA* and *LCETR* serve as the economic channels through which *LNCPR* impacts the cost of bank loans.

Furthermore, we posit that if the relationship between *LNCPR* and loan spread is influenced by poor earnings quality and tax avoidance activities, we would also expect that the effect of *LNCPR* would magnify the impact of *EARQUA* and *LCETR* on the cost of bank loans. We examine this conjecture by incorporating *EARQUA* and the interaction of *LNCPR*∗*EARQUA* in Model (5), and LCETR and the interaction of *LNCPR*∗*LCETR* in Model (6). These tests enable us to assess how the interplay between firms' soft information and hard information jointly affects loan pricing behavior.

In Model 5, we observe that the coefficient of *LNCPR*∗*EARQUA* on the cost of bank loans is 0.955 and significant at the 1% level. This coefficient signifies a 14.65% increase compared to the *EARQUA* coefficient in Model 3, indicating that *EARQUA* has a more pronounced effect on the cost of bank loans for firms situated in high gambling preference areas. Likewise, in Model (6), the coefficient of *LNCPR*∗*LCETR* on the cost of bank loans is statistically significant at the 1% level. Furthermore, the coefficient of *LNCPR*∗*LCETR* on the cost of bank loans is 6.75 times greater than that of *LCETR* in Model 4. These findings suggest that higher local gambling preferences amplify the impact of informational risk and risky tax planning on loan spreads.

7.2. Firm earnings risk channels

Banks consider and price several types of risks associated with borrowers, including earnings risk measured by the variability in firms' financial and market performances. Given that high local gambling preferences indicate a proclivity for risky investments, these firms will encounter greater earnings volatility (Mishra, Lalumière, and Williams 2010). This volatility can lead to difficulties in repaying loan installments or even result in loan defaults. Consequently, banks will impose higher costs on such firms.

We consider earnings and stock return as crude proxies of firms' risk to test this notion. To calculate earnings volatility (*EVOL*), we compute the rolling standard deviation of the firm's EBITDA to total assets over the past five years (John, Litov, and Yeung 2008). Similarly, we define return volatility (*RVOL*) as the annualized standard deviation of returns derived from monthly market-adjusted stock returns over the preceding five years. We run *EVOL* and *RVOL* models with *LNCPR* as the primary independent variable, incorporating standard firm- and country-level control variables, along with year- and industry-fixed effects. We present the findings in Models (1) and (2), Panel B of Table 8. Our findings reveal that *LNCPR* is positively associated with *EVOL* and *RVOL*,

Table 7. Gambling on loan price: Economic mechanisms.

Panel A: Gambling preference, information environment, and cost of bank loan

	EARQUA	*LCETR*		*LSPREAD*		
	(1)	(2)	(3)	(4)	(5)	(6)
$LNCPR_{t-1}$	0.001***	−0.015***			0.021**	0.024***
	(2.32)	(−3.02)			(2.54)	(2.88)
$EARQUA_{t-1}$			0.830**		0.401	
			(2.08)		(1.34)	
$LCETR_{t-1}$				−0.004***		−0.002**
				(−3.54)		(−2.46)
$LNCPR_{t-1} * EARQUA_{t-1}$					1.010***	
					(2.96)	
$LNCPR_{t-1} * LCETR_{t-1}$						−0.026***
						(−3.15)
$LASSET_{t-1}$	−0.001***	0.027***	−0.130***	−0.116***	−0.128***	−0.115***
	(−12.02)	(6.19)	(−14.40)	(−12.50)	(−14.38)	(−12.53)
MTB_{t-1}	0.000***	−0.001	−0.001*	−0.002**	−0.001**	−0.002**
	(3.41)	(−1.54)	(−1.81)	(−2.33)	(−2.03)	(−2.43)
TAN_{t-1}	−0.004***	−0.063**	−0.019	−0.000	−0.011	0.002
	(−3.39)	(−2.16)	(−0.54)	(−0.01)	(−0.34)	(0.06)
LEV_{t-1}	−0.000	−0.100***	0.551***	0.455***	0.562***	0.457***
	(−0.21)	(−3.39)	(12.34)	(10.90)	(12.43)	(10.73)
ROE_{t-1}	0.006**	0.145**	−0.424***	−0.398***	−0.423***	−0.388***
	(2.10)	(2.34)	(−6.10)	(−3.84)	(−6.15)	(−3.80)
$ZSCORE_{t-1}$	−0.001***	0.039***	−0.051***	−0.049***	−0.050***	−0.047***
	(−3.87)	(5.61)	(−6.75)	(−6.17)	(−6.64)	(−6.07)
$LMAT_{t-1}$			−0.073***	−0.052***	−0.072***	−0.051***
			(−5.04)	(−3.19)	(−5.00)	(−3.12)
$LSIZE_{t-1}$			−0.075***	−0.093***	−0.076***	−0.092***
			(−9.03)	(−11.18)	(−9.12)	(−11.11)
$LCILOAN_{t-1}$			0.036**	0.028*	0.036**	0.030*
			(2.05)	(1.67)	(2.03)	(1.78)
$LTOTDEP_{t-1}$			−0.038*	−0.028	−0.050**	−0.038*
			(−1.65)	(−1.26)	(−2.15)	(−1.71)
$LNBANK_{t-1}$			−0.038***	−0.036**	−0.019	−0.023
			(−3.00)	(−2.56)	(−1.34)	(−1.45)
$TERMS_{t-1}$			3.269***	0.222***	3.362***	0.220***
			(8.49)	(6.00)	(8.75)	(5.84)
CONSTANT	0.019**	0.147	−2.623**	7.042***	−2.641**	7.199***
	(2.56)	*(0.64)*	*(−2.15)*	*(16.85)*	*(−2.18)*	*(17.11)*
County baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Year- and industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Loan type controls	No	No	Yes	Yes	Yes	Yes
Purpose controls	No	No	Yes	Yes	Yes	Yes
Rating, syndication	No	No	Yes	Yes	Yes	Yes
Observations	*14072*	*1212*	*14072*	*12121*	*14072*	*12121*
Adjusted R-squared	*0.087*	*0.053*	*0.526*	*0.545*	*0.528*	*0.546*

Panel B: Gambling preference, risk-taking, and cost of bank loan

	EVOL	RVOL		LSPREAD		
	(1)	(2)	(3)	(4)	(1)	(2)
$LNCPR_{t-1}$	0.087**	0.008***			−0.033	−0.060
	(2.43)	(3.93)			(−1.11)	(−1.64)
$EVOL_{t-1}$			0.063***		0.023	
			(5.86)		(1.23)	
$RVOL_{t-1}$				1.321***		0.881***
				(10.56)		(4.58)
$LNCPR_{t-1} * EVOL_{t-1}$					0.066***	
					(2.73)	
$LNCPR_{t-1} * RVOL_{t-1}$						0.653***
						(2.65)

(continued)

Table 7. Continued

	EVOL	RVOL		LSPREAD		
	(1)	(2)	(3)	(4)	(1)	(2)
$LASSET_{t-1}$	0.142***	−0.013***	−0.101***	−0.083***	−0.102***	−0.083***
	(12.43)	(−21.38)	(−8.38)	(−6.84)	(−8.40)	(−6.87)
MTB_{t-1}	−0.002	0.000	−0.002***	−0.002***	−0.002***	−0.002***
	(−1.25)	(1.41)	(−3.80)	(−3.58)	(−3.77)	(−3.59)
TAN_{t-1}	−0.078	−0.000*	0.035***	−0.005**	0.033***	−0.005***
	(−1.45)	(−1.83)	(3.00)	(−2.55)	(2.85)	(−2.62)
LEV_{t-1}	0.423***	0.038***	0.223***	0.254***	0.225***	0.258***
	(4.22)	(4.62)	(3.66)	(6.47)	(3.68)	(6.56)
ROE_{t-1}	−0.333***	−0.028***	−0.318***	−0.222***	−0.315***	−0.223***
	(−3.71)	(−4.29)	(−5.35)	(−3.91)	(−5.34)	(−3.96)
$ZSCORE_{t-1}$	−0.043*	−0.005**	−0.009	−0.014	−0.009	−0.014
	(−1.78)	(−1.97)	(−1.21)	(−1.50)	(−1.20)	(−1.48)
$LMAT_{t-1}$			−0.091***	−0.093***	−0.090***	−0.093***
			(−5.74)	(−5.96)	(−5.70)	(−5.98)
$LSIZE_{t-1}$			−0.084***	−0.083***	−0.085***	−0.083***
			(−9.58)	(−9.44)	(−9.60)	(−9.39)
$LCILOAN_{t-1}$			0.019	0.026*	0.019	0.025*
			(1.19)	(1.68)	(1.22)	(1.67)
$LTOTDEP_{t-1}$			−0.021	−0.030	−0.024	−0.033
			(−1.00)	(−1.41)	(−1.14)	(−1.54)
$LNBANK_{t-1}$			−0.018	−0.013	−0.016	−0.009
			(−1.45)	(−1.11)	(−1.18)	(−0.69)
$TERMS_{t-1}$			3.146***	2.966***	3.189***	3.001***
			(7.02)	(6.53)	(7.10)	(6.57)
CONSTANT	−0.048	0.101***	−1.885	−1.470	−1.968	−1.470
	(−0.09)	(2.66)	(−1.33)	(−1.02)	(−1.40)	(−1.02)
County baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Year- and industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Loan type controls	No	No	Yes	Yes	Yes	Yes
Purpose controls	No	No	Yes	Yes	Yes	Yes
Rating, syndication	No	No	Yes	Yes	Yes	Yes
Observations	14842	14529	14842	14529	14842	14529
Adjusted R-squared	0.186	0.321	0.594	0.599	0.594	0.600

Panel C: Gambling preference, crash risk, and cost of bank loans

	NCSK	*DUVOL*		*LSPREAD*		
	(1)	(2)	(3)	(4)	(1)	(2)
$LNCPR_{t-1}$	0.057**	0.069***			0.021	0.027
	(2.05)	(3.83)			(0.96)	(1.23)
$NCSK_{t-1}$			0.041***		0.019	
			(5.75)		(1.34)	
$DUVOL_{t-1}$				0.029**		−0.005
				(2.41)		(−0.24)
$LNCPR_{t-1} * NCSK_{t-1}$					0.029**	
					(1.98)	
$LNCPR_{t-1} * DUVOL_{t-1}$						0.063**
						(2.12)
$LASSET_{t-1}$	0.058***	0.036***	−0.099***	−0.097***	−0.100***	−0.098***
	(8.62)	(8.32)	(−8.27)	(−8.08)	(−8.25)	(−8.07)
MTB_{t-1}	−0.003**	−0.000	−0.003***	−0.003***	−0.003***	−0.003***
	(−2.37)	(−0.28)	(−3.29)	(−3.39)	(−3.27)	(−3.41)
TAN_{t-1}	0.001	0.000	−0.006***	−0.006***	−0.006***	−0.006***
	(0.89)	(0.44)	(−3.36)	(−3.32)	(−3.41)	(−3.35)
LEV_{t-1}	−0.340***	−0.120***	0.339***	0.326***	0.343***	0.333***
	(−4.56)	(−2.76)	(6.90)	(6.63)	(6.95)	(6.71)
ROE_{t-1}	0.003	0.045	−0.210***	−0.211***	−0.209***	−0.211***
	(0.06)	(1.51)	(−3.15)	(−3.12)	(−3.14)	(−3.11)
$ZSCORE_{t-1}$	0.001	0.008	−0.050***	−0.050***	−0.050***	−0.050***
	(0.11)	(1.40)	(−6.60)	(−6.59)	(−6.57)	(−6.61)

(*continued*)

Table 7. Continued

	NCSK	*DUVOL*		*LSPREAD*		
	(1)	(2)	(3)	(4)	(1)	(2)
$LMAT_{t-1}$			−0.108***	−0.108***	−0.108***	−0.108***
			(−6.65)	(−6.73)	(−6.65)	(−6.72)
$LSIZE_{t-1}$			−0.083***	−0.084***	−0.082***	−0.084***
			(−8.80)	(−8.88)	(−8.79)	(−8.87)
$LCILOAN_{t-1}$			0.017	0.016	0.017	0.017
			(1.01)	(0.99)	(1.04)	(1.02)
$LTOTDEP_{t-1}$			−0.017	−0.017	−0.021	−0.021
			(−0.73)	(−0.73)	(−0.91)	(−0.90)
$LNBANK_{t-1}$			−0.023*	−0.023*	−0.018	−0.019
			(−1.84)	(−1.84)	(−1.35)	(−1.38)
$TERMS_{t-1}$			0.862***	0.862***	0.869***	0.872***
			(7.68)	(7.67)	(7.69)	(7.70)
CONSTANT	−0.195	−0.210	5.239***	5.263***	5.286***	5.294***
	(−0.47)	(−0.84)	(10.54)	(10.58)	(10.75)	(10.76)
County baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Year- and industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Loan type controls	No	No	Yes	Yes	Yes	Yes
Purpose controls	No	No	Yes	Yes	Yes	Yes
Rating, syndication	No	No	Yes	Yes	Yes	Yes
Observations	13150	13150	13150	13150	13150	13150
Adjusted R-squared	0.052	0.053	0.605	0.604	0.605	0.604

This table consists of two panels. Panel A reports the results of information environment mechanisms – earnings quality (Models 1 and 3) and tax avoidance (Models 2 and 4) – through which gambling preferences affect bank loan costs. Panel B presents risk-taking mechanisms - earnings volatility (Models 1 and 3) and stock volatility (Models 2 and 4) – through which local gambling preferences affect the cost of bank loans. Panel C presents crash risk mechanisms – negative conditional skewness (Models 1 and 3) and down-up volatility (Models 2 and 4) – through which local gambling preferences affect the cost of bank loans. The t-statistics are presented in parentheses, with standard errors clustered at the firm level. Significance levels ∗∗∗, ∗∗, and ∗ indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed definitions of variables used in the analysis are provided in the Appendix.

indicating that firms located in areas with higher *LNCPR* exhibit greater variability in both accounting and market-based performance. Consequently, banks are likely to impose higher loan prices on these firms.

Next, we examine the roles of *EVOL* and *RVOL* as potential channels through which *LNCPR* impacts bank loan prices. The results are in Models (3) and (4) of Panel B in Table 7. Consistent with prior literature, our findings reveal that both *EVOL* and *RVOL* positively explain the cost of bank loans in our sample firms. Overall, our results in Models 1–4 confirm that *EVOL* and *RVOL* serve as the economic channels through which local gambling preferences affect the cost of bank loans.

Finally, we assess whether *LNCPR* amplifies the impact of *EVOL* and *RVOL* on the cost of bank loans. To test this hypothesis, we incorporate earnings volatilities (*EVOL*) and the interaction of *LNCPR∗EVOL* Model (5), as well as stock return volatilities (*RVOL*) and the interaction of *LNCPR∗RVOL* in Model (6). In Model 5, we observe that the coefficient of *LNCPR ∗ EVOL* on the cost of bank loans is positive and statistically significant at the 1% level. Similarly, in Model (6), we find that the coefficient estimates of *LNCPR∗ROVL* are statistically significant at the 1% level. These findings are in line with the notion that banks charge higher fees for firms located in areas with higher *LNCPR* that are more likely to experience greater variabilities in their accounting and market-based performances.

7.3. Crash risk channels

Ji et al. (2021) show that regions with stronger gambling preferences experience greater stock price crash risk. Given that stock price crash risk indicates systemic issues in the firm's information environment, such as information opacity and the potential of managerial hiding of bad news, banks may probably find firms located in regions with stronger gambling preferences less reliable when these firms share information with the bank during the loan contracting process. Accordingly, banks may impose higher costs on such firms.

Table 8. Gambling and non-price loan terms.

	LSIZE	*LMAT*	*SECURITY*	*COVENANTS*
	(1)	(2)	(3)	(4)
$LNCPR_{t-1}$	−0.012*	−0.004	0.006*	0.031*
	(−1.82)	(−1.28)	(1.86)	(1.77)
$LASSET_{t-1}$	0.640***	−0.013***	−0.070***	−0.154***
	(109.45)	(−3.17)	(−20.93)	(−8.08)
MTB_{t-1}	0.003***	0.000	0.000	−0.002
	(3.45)	(0.57)	(0.70)	(−0.98)
TAN_{t-1}	0.119***	0.022	0.024	0.226***
	(3.38)	(1.39)	(1.63)	(2.75)
LEV_{t-1}	−0.018	0.085***	0.249***	0.388***
	(−0.43)	(4.80)	(12.78)	(3.46)
ROE_{t-1}	0.262***	−0.021	−0.142***	0.126
	(2.80)	(−0.87)	(−4.72)	(1.14)
$ZSCORE_{t-1}$	−0.003	0.006***	−0.004	0.013
	(−0.26)	(2.99)	(−1.22)	(1.45)
$LMAT_{t-1}$	0.322***		0.013	0.113***
	(17.40)		(1.60)	(3.06)
$LSIZE_{t-1}$		0.081***	−0.031***	−0.039**
		(17.52)	(−8.10)	(−2.12)
$LCILOAN_{t-1}$	−0.019	−0.010	0.000	−0.052
	(−1.16)	(−1.29)	(0.05)	(−1.34)
$LTOTDEP_{t-1}$	0.028	0.015	−0.009	0.110**
	(1.29)	(1.38)	(−0.82)	(2.23)
$LNBANK_{t-1}$	−0.000	−0.007	−0.003	0.052
	(−0.03)	(−1.20)	(−0.58)	(1.60)
$TERMS_{t-1}$	1.424***	0.955***	1.581***	0.007
	(3.25)	(4.44)	(8.04)	(0.23)
REL_{t-1}	0.040	0.075	0.062	−0.248
	(0.42)	(1.53)	(1.40)	(−0.99)
$MARSTA_{t-1}$	−0.229*	0.038	−0.080	−0.025
	(−1.76)	(0.61)	(−1.40)	(−0.08)
$MTFR_{t-1}$	0.111	−0.021	0.663***	0.930
	(0.41)	(−0.15)	(5.24)	(1.27)
$MINOR_{t-1}$	−0.174**	−0.009	0.032	−0.297
	(−2.11)	(−0.21)	(0.82)	(−1.38)
CONSTANT	7.505***	−0.627	-3.838***	0.829
	(5.49)	(−0.95)	(−6.36)	(0.89)
Year- and industry- effects	Yes	Yes	Yes	Yes
Loan type & purpose FE	Yes	Yes	Yes	Yes
Rating and syndication FE	Yes	Yes	Yes	Yes
Observations	15128	15128	15128	15128
Adjusted (Pseudo) R-squared	0.734	0.613	0.301	0.305

This table presents results regarding the impact of a firm's local gambling preferences on non-price loan terms. In all regressions, we account for industry-, year-, loan type-, syndication-, purpose-, and rating-fixed effects. The t-statistics are presented in parentheses, with standard errors clustered at the firm level. Significance levels ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed definitions of variables used in the analysis are provided in the Appendix.

Following prior literature (Al Mamun, Balachandran, and Duong 2020; Al Mamun et al., 2021), we consider two measures of crash risk – the negative conditional skewness (*NSCK*) and down–up volatility (*DUVOL*) as two measures of crash risk. We run *NSCK* and *DUVOL* models with *LNCPR* as the primary independent variable, incorporating standard firm- and country-level control variables, along with year- and industry-fixed effects. We present the findings in Models (1) and (2), Panel C of Table 7. Our findings reveal that *LNCPR* is positively associated with *NSCK* and *DUVOL*, indicating that firms located in areas with higher *LNCPR* exhibit greater variability in both accounting and market-based performance. Consequently, banks are likely to impose higher loan prices on these firms.

Next, we examine the roles of *NSCK* and *DUVOL* as potential channels through which *LNCPR* impacts bank loan prices. The results are presented in Models (3) and (4). Consistent with prior literature, our findings reveal that both *NSCK* and *DUVOL* positively explain the cost of bank loans in our sample firms. Overall, our results in Models 1–4 confirm that *NSCK* and *DUVOL* serve as the economic channels through which local gambling preferences affect the cost of bank loans.

Finally, we assess whether LNCPR increases the impact of *NSCK* and *DUVOL* on the cost of bank loans. To test this hypothesis, we incorporate *NCSK* and the interaction of *LNCPR∗NCSK* in Model (5), as well as DUVOL and the interaction of LNCPR∗DUVOL in Model (6). In Model 5, we observe that the coefficient of *LNCPR∗NCSK* on the cost of bank loans is positive and statistically significant. Similarly, in Model (6), we find that the coefficient estimates of *LNCPR∗DUVOL* is positive and statistically significant. These findings validate that banks charge higher fees for firms located in areas with higher *LNCPR* as these firms are likely to experience higher crash risk.

8. Additional tests

8.1. Non-price loan terms

In this section, we investigate the impact of local gambling preferences on non-price loan terms. Our analysis is motivated by the existing literature, which has shown that banks may implement certain restrictions and features in loan contracts to monitor borrower behavior and enhance the likelihood of successful loan collection (Dichev and Skinner 2002; Armstrong, Guay, and Weber 2010). Consequently, if firms in areas with higher local gambling preferences display greater information asymmetry and engage in more aggressive risk-taking behavior, we anticipate that lenders will enforce more stringent loan contracts for such firms.

To examine this notion, we examine four distinct non-price loan terms: loan size (*LSIZE*), loan maturity (*LMAT*), the number of financial covenants imposed within the loan contract (*COVENANTS*), and the presence of loan security (*SECURITY*). We measure *LSIZE* and *LMAT* as the natural logarithm of the total loan amount and the duration of the loan contract in months, respectively. The *COVENANTS* variable is treated as a categorical variable, ranging from zero to eight, representing eight different covenants. A higher value on this scale indicates a more restrictive debt contract. The *SECURITY* variable, which reflects the collateral requirement, is a binary variable equal to one if the loan is secured and zero otherwise.

Additionally, in line with the intuitions of Stiglitz and Weiss (1981), we consider that in markets characterized by imperfect information, supply-side effects, such as credit rationing, can become significant. Therefore, apart from charging higher loan prices[15], banks may also reduce the supply of loans to firms in areas with higher local gambling preferences. Loan covenants serve to impose additional restrictions on borrowers, guide the use and repayment of loans, and facilitate the alignment of shareholder and debtholder interests (Bradley and Roberts 2015). Any violation of debt covenants incurs additional costs for the borrower and tightens conditions in existing or future loan contracts. Consequently, debt covenants also offer lenders additional opportunities to monitor the actions of firms' managers (Rajan and Winton 1995).

The findings in Table 8 reveal that the impact of local gambling preferences on loan size (*LSIZE*) is negative and marginally significant, while for loan maturity (*LMAT*), the effect is negative and statistically insignificant. In contrast, both the number of financial covenants (*COVENANTS*) and the presence of security (*SECURITY*) exhibit positive and statistically significant associations. Although the significance levels are somewhat marginal, these results support the notion that, apart from charging higher loan prices, lenders also engage in credit rationing, impose more stringent financial covenants, and require security collateral when granting loans to firms located in areas with higher local gambling preferences. Overall, our results align with previous studies emphasizing the significance of non-price loan terms in monitoring borrowers throughout the loan period and safeguarding lenders against morally hazardous behavior by borrowers (Stiglitz and Weiss 1981; Nini, Smith, and Sufi 2009; Lim, Do, and Vu 2020).

8.2. Effect of corporate governance

In our final set of analyses, we explore whether corporate governance can mitigate the positive impact of gambling preferences on the cost of bank loans. Previous literature documents that corporate governance

Table 9. Effect of gambling on loan price: Role of governance.

	LNSPREAD				
	(1)	(2)	(3)	(4)	(5)
$LNCPR_{t-1}$	0.028*	0.033**	0.134		
	(1.88)	(2.13)	(0.53)		
IO_{t-1}				0.021**	0.130*
				(2.31)	(1.81)
$TOIND_{t-1}$		−0.639***	−0.466		0.269
		(−5.19)	(−1.62)		(0.72)
$LNCPR_{t-1} * IO_{t-1}$	−0.192***		−0.085***	−0.132***	
	(−6.17)		(−2.69)	(−3.67)	
$LNCPR_{t-1} * TOIND_{t-1}$				−0.036**	
				(−2.05)	
$LASSET_{t-1}$					−0.467***
					(−2.85)
MTB_{t-1}	−0.125***	−0.120***	−0.043**	−0.126***	−0.047***
	(−12.01)	(−10.51)	(−2.43)	(−12.44)	(−2.65)
TAN_{t-1}	−0.002***	−0.003***	−0.001	−0.002***	−0.001
	(−3.52)	(−3.95)	(−1.43)	(−3.09)	(−1.44)
LEV_{t-1}	0.052*	0.042	0.031	−0.009	0.032
	(1.85)	(1.39)	(0.58)	(−0.25)	(0.62)
ROE_{t-1}	0.497***	0.462***	0.174***	0.465***	0.178***
	(6.19)	(6.18)	(3.34)	(6.07)	(3.44)
$ZSCORE_{t-1}$	−0.267***	−0.295***	−0.355***	−0.275***	−0.360***
	(−4.95)	(−3.93)	(−3.70)	(−4.96)	(−3.76)
$LMAT_{t-1}$	−0.017	−0.036***	−0.027**	−0.015	−0.027**
	(−1.49)	(−3.03)	(−2.07)	(−1.28)	(−2.07)
$LSIZE_{t-1}$	−0.080***	−0.081***	−0.049***	−0.083***	−0.050***
	(−5.11)	(−4.81)	(−2.89)	(−5.38)	(−2.95)
$LCILOAN_{t-1}$	−0.092***	−0.089***	−0.079***	−0.094***	−0.079***
	(−10.41)	(−9.39)	(−7.58)	(−10.95)	(−7.62)
$LTOTDEP_{t-1}$	0.026	0.018	0.005	0.028	0.003
	(1.40)	(0.95)	(0.18)	(1.52)	(0.12)
$LNBANK_{t-1}$	−0.043*	−0.029	0.001	−0.040*	0.003
	(−1.80)	(−1.17)	(0.05)	(−1.66)	(0.12)
$TERMS_{t-1}$	−0.040**	−0.042**	−0.614***	−0.027*	−0.626***
	(−2.44)	(−2.41)	(−8.16)	(−1.65)	(−8.24)
CONSTANT	0.173	0.146	−0.858	0.095	−0.888
	(1.47)	(1.19)	(−1.13)	(0.82)	(−1.16)
County controls	Yes	Yes	Yes	Yes	Yes
Year- and industry-fixed effects	Yes	Yes	Yes	Yes	Yes
Loan type- and purpose-fixed effects	Yes	Yes	Yes	Yes	Yes
Rating- and syndication-fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	15128	14088	14088	15128	14088
Adjusted R–square	0.514	0.519	0.720	0.527	0.721

This table presents the regression results regarding the impact of external oversight mechanisms on the baseline result. In all regressions, we include controls for industry-, year-, loan type-, syndication-, purpose-, and rating-fixed effects. The t-statistics are presented in parentheses, with standard errors clustered at the firm level. Significance levels ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed definitions of variables used in the analysis are provided in the Appendix.

mechanisms promote information transparency and restrain firm risk-taking behavior (Ferreira and Laux 2007; Cheng et al. 2010; Ramalingegowda and Yu 2012), ultimately leading to a lower cost of debt financing (Ashbaugh-Skaife, Collins, and LaFond 2006; Ertugrul and Hegde 2008). As a result, we re-run our baseline regression while accounting for firms' corporate governance mechanisms.

Specifically, we incorporate institutional ownership (IO) and the takeover index (*TOIND*) as measures of corporate governance. Institutional ownership (IO) represents the number of shares held by institutions divided by the total outstanding shares. The takeover index (*TOIND*), constructed using external legal determinants, provides a more precise and effective measure of the market for corporate control (Cain, McKeon, and Solomon 2017). Our results, presented in Table 9, Models 1–3, demonstrate that both *IO* and *TOIND* reduce the cost of bank loans. However, even when controlling for *IO* and *TOIND*, the impact of local gambling preferences persists, although to a lesser degree.

Given our findings of a negative and significant impact of governance, we investigate the moderating role of *IO* and *TOIND* in the relationship between *LNCPR* and the cost of bank loans. The results are presented in Models (4) and (5) of Table 9. The coefficient estimates of the interaction terms (*IO*∗*LNCPR* and *TOIND*∗*LNCPR*) capture the influence of governance in shaping the association between local gambling preferences and the cost of bank loans. Our findings indicate that the coefficients of (*IO*∗*LNCPR* and *TOIND*∗*LNCPR*) are negative and statistically significant. These results suggest that external monitoring, as represented by institutional ownership (*IO*) and the takeover index (*TOIND*), alters the positive effect of local gambling preferences on the cost of bank loans.

9. Conclusion

Using county-level measures of local gambling preferences, we examine the impact of these preferences on the design of bank loan contracts in the U.S. context. Our findings indicate that firms located in counties with a higher propensity for gambling preferences tend to face higher costs for their bank loans. These results survive under various tests aimed at addressing potential concerns related to endogeneity, omitted variables, and measurement errors. Additionally, we have observed that local gambling preferences also influence non-price loan terms. We test three information risk-related channels – earnings quality, earnings risk, and managerial hiding of bad news - to substantiate our main findings. We apply three-step approaches to test (a) the effect of local gambling preference on our channels, (b) the effects of our channels on the cost of bank loans, and (c) the effect of the interaction of our channels and local gambling preference on the cost of bank loans.

Our research further reveals that firms with higher local gambling preferences are associated with poor earnings quality, increased tax avoidance, greater earnings risk, as well as higher levels of managerial hiding of bad news. Importantly, local gambling preferences intensify the impact of earnings quality, tax avoidance, performance variability, and managerial hiding of bad news on the cost of bank loans. Thus, our study not only confirms but also expands upon previous literature by providing evidence that non-financial, such as a firm's local gambling culture, have a significant influence on the structure of debt contracts.

Notes

1. The sample concludes in 2010 because this study relies on data related to religious adherence from the Association of Religion Data Archives (ARDA). ARDA updates its religious adherence data using census data, and at the time of our research, the most recent census data available was from 2010. Data regarding religious adherence from the 2020 census is not yet publicly available.
2. For example, while Jiang et al. (2018), Callen and Fang (2015), and Boone, Khurana, and Raman (2013) consider adherence to any religion as a measure of religiosity, Dyreng, Mayew, and Williams (2012) use honesty as a measure of religiosity.
3. For example, the crash risk literature (Al Mamun, Balachandran, and Duong 2020; Kim, Song, and Zhang 2011) is based on the skewness in returns, which differs from the variance of returns (Adams, Almeida, and Ferreira 2005).
4. The Loughran-McDonald database begins in 1993. Therefore, we use each firm's historical location in 1993 as its headquarters' location for years prior to 1993.
5. The data is available once every decade We collected the data from surveys on religious affiliation in the U.S. conducted in 1971, 1980, 1990, 2000, and 2010.
6. The Catholic and Protestant population ratio (*LNCPR*) is preferred over other measures of local gambling preferences, such as age, income, education, and gender. This preference arises because the relationship between sociological factors and gambling direction remains unclear in the literature, while the empirical literature has clearly established the link between diverse religious beliefs or views and gambling.
7. Our result also holds when we cluster the standard error at both firm and year level. Given that our main independent variable of interest is at the county level, our results throughout the paper remain consistent when using country-level clustering as well.
8. Hilary and Hui (2009) use 3 years old values of local gambling preference, while and Jiang et al. (2018) use 3 years old values of local religiosity as instrument for current periods' gambling preference and religiosity, respectively. But our approach is even more conservative as we use 28 years of value of local gambling preference as instrument for current period's local gambling preference. Unreported result show that using 3 years old value of local gambling preference as instrument for current value of local gambling preference, does not change our result.

9. Given that LNCPR1952 is a time-invariant variable for each county, there is a potential for perfect multicollinearity issue. However, since the historical location of the firms headquarter changes (as evident in our relocation analysis in Table 5) from one county to another, there are some firms that experience a variation of their LNCPR1952 value. Hence, we do not have perfect multicollinearity issue and estimation provides a valid coefficient for LNCPR1952.
10. We also follow Hassan et al. by introducing two variables, *Change* and *After*. Specifically, *Change* is a binary variable that equals one (zero) if a firm relocates its headquarters to a county with higher (lower) gambling preferences compared to its current location. While *After* is a binary variable that equals 1 for years following a firm's relocation; otherwise, it is zero. We incorporate all control variables, consistent with Model 4 of Table 3. The primary variable of interest is the interactive term (*After∗Increase*), which represents the difference in the cost of bank loans over time between firms that relocate to a county with higher local gambling preferences and those that relocate to a county with lower local gambling preferences. Unreported result show that the coefficient of *After∗Increase* is positive and significant suggesting that firm that experience relocation to higher gambling are than others, incurs higher cost of bank loans.
11. All of our robustness tests include full set of control variables and fixed effects applied in Model 4 (Table 3).
12. National Neighborhood Data Archive (NaNDA): Eating and Drinking Places by Census Tract, United States, 2003-2017. The data is available at https://www.openicpsr.org/openicpsr/.
13. Gambling in the United States. Accessed from https://en.wikipedia.org/wiki/Gambling_in_the_United_States
14. Specifically, we calculate yearly abnormal accruals using $TCA_{i,t} = \varphi_0 + \varphi_1 CFO_{it-1} + +\varphi_2 CFO_{it} + +\varphi_3 CFO_{it+1} + +\varphi_1 \Delta REV_{it} + \varphi_1 PPE_{it} + \epsilon_{it}$ equation. Where *TCA* is total current accruals calculated as ΔCA – ΔCL – $\Delta Cash$ + $\Delta STDEBT$, ΔCA is change in current assets, ΔCL is change in current liabilities, ΔCash is change in cash, $\Delta STDEBT$ is change in debt in current liabilities. The *CFO* is cash flow from operations computed as *IBEX* –*TCA*+*DEPN*, where *IBEX* is net income before extraordinary items and *DEPN* is depreciation and amortization expense. The ΔREV is the change in revenues, while *PPE* is the gross value of property, plant, and equipment. We estimate Equation 2 for every firm-year in each of the Fama and French 49 industry groups, with at least 20 firms observed in a particular year (Rajgopal and Venkatachalam 2011). Finally, we use the standard deviation of firm-specific residual, ϵ_{it}Over the years, t–4 through t as our measure of abnormal accrual quality (*EARQUA*). Specifically, a larger standard deviation of residuals indicates poor accruals and earnings quality.
15. Given that loan amounts are used as a control variable, our results so far suggest that banks charge a higher cost for any given amount of the loan.

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Data availability statement

Data set associated with the paper comes from a public source such as American Religion Data Archive (ARDA) and commercial sources such as LPC DealScan database and Compustat.

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Appendix: Variable definitions

Dependent variables	
LSPREAD	The natural logarithm of the amount of loan interest payment in basis points over LIBOR or LIBOR equivalent for each dollar drawn down (i.e. the all-in spread) for a loan facility a firm obtains in year t (Hasan et al. 2014).
Local gambling preference variables	
LNCPR	The natural logarithm of Catholic residents to Protestant residents in the county where the firm is headquartered.
CPR	The ratio of Catholic residents to Protestant residents in the firm's headquartered county.
LNBAR	The natural logarithm of the total number of bars (*LNBAR*) at the county level
LotteryPerCapita	Per capita, lottery sales per state are calculated as state lottery sales divided by the state population using data from the U.S. Census Bureau.
High Percap lottery	An indicator variable equal to one if the state in which a firm is headquartered has LotteryPerCapita above the sample median and zero otherwise.
CATH	The proportion of Catholics among a county's total population.
PROT	The proportion of Protestants among a county's total population.
GAMINDX	A state-level measure of the gambling index as suggested by Adhikari and Agrawal (2016).
Independent variables	
LASSET	Natural logarithm of the total assets at the beginning of the year.
MTB	Market-to-book value is defined as the market value of equity divided by the book value of equity at the beginning of the year.
TAN	Asset tangibility is measured as the property, plant, and equipment ratio to total assets at the beginning of the year.
LEV	Leverage is defined as total debt divided by total assets at the beginning of the year.
ROE	Return on equity is net income divided by common/ordinary equity.

(*continued*)

Independent variables	
ZSCORE	Modified Z-score in year t−1 following Hasan et al. (2014). Z-score = (1.2∗*WCAP*+1.4∗*RE*+3.3∗*PI*+0.999∗*SALE*)/*AT*, where *WCAP* is working capital, RE has retained earnings, *P*.I. is pre-tax income, SALE is total sales, and AT is total assets. We use this modified Z-score, which does not include the ratio of the market value of equity to the book value of total debt because a similar term, market-to-book (M/B), enters the baseline regressions as a separate control variable.
LMAT	The number of months between the loan initiation date and maturity date
LNCPR1952	Catholic to Protestant members ratio in 1952, the first year ARDA started collecting data on county-level church membership.
LSIZE	The natural logarithm of the size of the loan facility amount.
$LCILOAN_{t-1}$	The natural logarithm of the size of total commercial and industrial loans provided by the lead lending banks.
$LTOTDEP_{t-1}$	The natural logarithm of the total bank deposits of the lead lending banks.
$LNBANK_{t-1}$	The natural logarithm of the number of total banks operating in the state where the firm is headquartered.
$TERMS_{t-1}$	The difference between the ten-year government bond yield and three-month T-bill yield in annual form.
REL	The portion of a county's population whose residents adhere to any religion in the county where the firm is headquartered.
MARSTA	The percentage of county residents who are married in the county where the firm is headquartered.
MTFR	The ratio of male residents to female residents in the county where the firm is headquartered.
MINOR	The percentage of residents who are non-white in the county where the firm is headquartered.
LTYPE	Dummy variables for loan types include a term loan, revolver greater than one year, revolver less than one year, a 364-day facility, bridge loans, and miscellaneous.
LPURPOSE	Dummy variables for loan purposes, including corporate purposes, debt repayment, working capital, acquisitions, backup loans, debt repayment, and miscellaneous.
RATING	Dummy variables for Standard & Poor's senior debt rating from 1 to 7, with 1 indicating a AAA rating, 2 indicating an A.A. rating, 3 indicating an A rating, 4 indicating a BBB rating, 5 indicating a B.B. rating, 6 indicating a B rating, and 7 indicating a rating worse than B or no rating.
Additional variables	
DUVOL	The log of the ratio of the standard deviation of firm-specific down weekly returns to the standard deviation of up weekly returns during the fiscal year. We follow (Al Mamun, Balachandran, and Duong 2020) to calculate DUVOL.
EARQUA	A measure of earnings quality following Rajgopal and Venkatachalam (2011).
EVOL	Measures earnings volatility, i.e. the five-year rolling standard deviation of a firm's EBITDA to total assets (John, Litov, and Yeung 2008).
NCSK	The negative skewness of firm-specific weekly returns over the fiscal year. We follow (Al Mamun, Balachandran, and Duong 2020) to calculate to calculate *NCSKEW*.
RVOL	The annualized standard deviation of returns estimated from monthly market-adjusted stock returns over five years.
LocalCEO	A dummy variable of one if the CEO is from the local area where a firm is headquartered, zero otherwise.
LCETR	Cash effective tax rate, defined as cash tax paid (TXPD) / (pre-tax book income (PI) - special items (SPI)). CETR is set to missing if the denominator is zero or negative.
TOIND	Hostile takeover index, a measure of takeover susceptibility suggested by (Cain, McKeon, and Solomon 2017).
IO	Percentage of stocks held by institutional investors at the beginning of the year.
SECURITY	A dummy variable equals one if the loan is secured and zero otherwise.
COVENANTS	A categorical variable representing eight different covenants, with a higher value indicating a more restrictive debt contract.