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Does lesbian and gay friendliness pay off? A new look at LGBT policies and firm performance

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Abstract

This paper examines the association between LGBT-friendly corporate policies and firm performance. Using data on US firms from 2003 to 2016, we document that LGBT friendliness is positively associated with firm performance. Specifically, we find strong evidence that more LGBT-friendly firms have higher profitability and higher stock market valuations. Our results further demonstrate that the positive effect of progressive LGBT policies on firm performance is more pronounced for firms located in more liberal states. Overall, our empirical findings provide support for the view that socially progressive corporate policies and diversity management may create value for the firm.

Key words: LGBT policies; Firm performance; Sexual minorities; Employee policies

JEL classification: D22, G30, G31, G39, J15, J70, J83, M12, M50

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1. Introduction

Corporate social advocacy can be a tricky business. While taking a public stand on potentially sensitive social or political issues may lead to positive outcomes and competitive advantages, the repercussions of social advocacy can also be detrimental if the stance taken is not aligned with the preferences and values of the firm's key stakeholders. One particularly visible and divisive form of corporate social advocacy in the US has been firms' engagement in the public socio-political debate related to sexual minorities. Over the past decade, many prominent large firms have been among the most visible proponents of lesbian, gay, bisexual and transgender (LGBT) rights and anti-discrimination policies despite the risk of potentially alienating some of their employees, customers and other stakeholders who may share different social values.[1] Given that LGBT advocacy often has no intrinsic relation to firms' core business operations, why do firms engage in a controversial debate over sexual minorities instead of remaining value-neutral? The natural question then is whether LGBT friendliness pays off for the firms. In this paper, we address this question by empirically examining the relationship between LGBT-friendly corporate policies and firm performance.

There are various reasons why LGBT friendliness may influence firm performance. In general, corporate social advocacy such as the adoption of LGBT-supportive policies or taking a stand on same-sex marriage can be broadly considered as an element of corporate social responsibility (see, e.g., Snider *et al*., 2003; Weinzimmer and Esken, 2016; Wettstein and Baur, 2016; Shan *et al*., 2017). Consequently, the theoretical arguments for a link between corporate social responsibility (CSR) and firm performance are largely applicable also in the context of LGBT advocacy. While the classical shareholder-oriented view of Friedman (1962, 1970) posits that the only social responsibility of a firm is to increase its profits, implying that CSR is potentially value-destroying expenditure of corporate resources, the stakeholder theory established by Freeman (1984) argues that engagement in social activities creates shareholder value by forging relationships with the firm's key stakeholders.[2] In the vast body of CSR literature, the stakeholder theory has

[1]Over recent years, prominent firms such as Apple, Coca-Cola, Goldman Sachs, Google, Hewlett-Packard, Intel, KPMG, PwC, Starbucks, Target and Walt Disney have engaged in the public discussion and have actively supported sexual minorities (see, e.g., Aspan, 2020).

[2]Consistent with Friedman's (1970) shareholder-oriented view, Henderson (2001), Jensen (2002) and Sundaram and Inkpen (2004) have criticised socially responsible behaviour as an unnecessary cost and potentially value-destroying investment. Freeman's (1984) stakeholder view is comprehensively discussed and further elaborated, e.g., in Donaldson and Preston (1995), Jones (1995), Agle *et al*. (2008) and Laplume *et al*. (2008).

become the central paradigm for rationalising why social responsibility may pay off by enhancing firm reputation, customer relationships, accumulation of human capital and access to resources and external financing (see, e.g., Waddock and Graves, 1997; Barnett, 2007; Artiach *et al*., 2010; Surroca *et al*., 2010; Faleye and Trahan, 2011; Barnett and Salomon, 2012; Flammer and Luo, 2017; Buchanan *et al*., 2018).[3] Thus, if LGBT friendliness is not conflicting with stakeholders' expectations and values, the stakeholder theory predicts a positive relationship between LGBT-friendly policies and firm performance.

Loosely parallel with the stakeholder view, the human resource management (HRM) theories regarding employee satisfaction and diversity management provide an alternative motivation for hypothesising a positive linkage between LGBT-friendly policies and firm performance. These theories recognise employees as the firm's key asset and a focal source of competitive advantage and value creation (e.g., Cascio, 1991; Huselid, 1995; Whitener, 2001; Gelade and Ivery, 2003; Faleye and Trahan, 2011; Edmans, 2012). An extensive literature has documented that employee-friendly practices and organisational diversity management policies benefit firms, for instance, by advancing employee motivation and engagement, labour stability and productivity, and the firm's competitiveness in the labour market (e.g., Wright *et al*., 1995; Waddock and Graves, 1997; Richard, 2000; Bridges *et al*., 2003; Jackson *et al*., 2003; Kochan *et al*., 2003; Armstrong *et al*., 2010; Edmans, 2011, 2012; Chen *et al*., 2016; Fauver *et al*., 2018; Ahmed and Bukth, 2019).

Accordingly, consistent with the stakeholder arguments, intangible investments in employee welfare and satisfaction may ultimately improve firm performance by enhancing the firm's relational and reputational capital with its employees and other stakeholders. This line of argumentation is also broadly consistent with the institutional and legitimacy theories used in the CSR literature in tandem with the stakeholder theory (see, e.g., Fernando and Lawrence, 2014). These theories suggest that CSR initiatives such as those related to LGBT-friendly policies can be induced by the firms' pursuit to build reputation and achieve legitimacy in the context of their social environment (e.g., Roumpi *et al*., 2020). Given that perceived LGBT friendliness is to a large extent conjoined with inclusive and non-discriminatory employee policies and

[3]An extensive literature has been devoted to examining the relation between CSR and firm performance (for reviews, see, e.g., Griffin and Mahon, 1997; Orlitzky, 2001; Orlitzky *et al*., 2003; van Beurden and Gössling, 2008; Peloza, 2009; Aguinis and Glavas, 2012; Huang, 2021). While many studies have documented a negative, neutral or mixed association between CSR activities and financial performance (e.g., McWilliams and Siegel, 2000; Brammer and Millington, 2008; Surroca and Tribó, 2008; Surroca *et al*., 2010; Krüger, 2015; Buchanan *et al*., 2018), recent empirical evidence generally supports the view that the relationship is positive (e.g. Barnett and Salomon, 2012; Servaes and Tamayo, 2013; Eccles *et al*., 2014; Dimson *et al*., 2015; Flammer, 2015; Hasan *et al*., 2018; Miller *et al*., 2020; Huang, 2021).

embracing diversity in the workplace, the concomitant favourable HRM outcomes are a potential mechanism through which LGBT-friendly corporate policies can improve firm performance. Nevertheless, analogously to the stakeholder view, a prerequisite for value creation is that LGBT friendliness does not alienate the firm's employees or other stakeholders who have different social values.

A growing body of research offers evidence that LGBT friendliness advances a range of desired corporate outcomes. Previous studies have documented that LGBT-friendly firms are associated with greater employee commitment, improved job satisfaction, increased employee productivity, and more altruistic workplace behaviour (e.g., Day and Schoenrade, 1997, 2000; Button, 2001; Ragins and Cornwell, 2001; Ragins *et al*., 2007; Badgett *et al*., 2013; Shan *et al*., 2017). Furthermore, LGBT-friendly policies may improve competitiveness in the labour market by fostering the firm's ability to attract, recruit and retain talented employees (e.g., Huffman *et al*., 2008; Day and Greene, 2008; Metcalf and Rolfe, 2011; Badgett *et al*., 2013; Trau, 2015; Wettstein and Baur, 2016). Among firms' LGBT workforce, the implementation of sexual minority policies is associated with improved job satisfaction and psychological well-being, lower job-related stress and reduced perception of discrimination (e.g., Day and Schoenrade, 1997; Ragins and Cornwell, 2001; Griffith and Hebl, 2002; Ragins *et al.,* 2007). LGBT friendliness may also advance customer relations and improve the firm's reputation as a socially responsible corporate citizen (Day and Greene, 2008; Weinzimmer and Esken, 2016; Wettstein and Baur, 2016). Taken together, the prior literature demonstrates that LGBT-friendly corporate policies may help firms to accumulate and develop intangibles related to human capital, stakeholder relations and firm reputation.

Given that LGBT friendliness may enhance the firm's relational and reputational capital, it is not surprising that several studies have recently examined the implications of LGBT-friendly corporate policies on financial outcomes. Johnston and Malina (2008) and Wang and Schwarz (2010) focus on the association between firms' LGBT policies and stock returns. Using an event study approach, Johnston and Malina (2008) find that the short-run stock market reaction to news regarding LGBT-friendly policies is positive or neutral, while Wang and Schwarz (2010) document that firms with more LGBT-friendly policies are associated with higher long-run stock returns. Li and Nagar (2013) examine how the adoption of same-sex domestic partner benefit policies affects stock prices, and report that a portfolio of firms initiating such LGBT-supportive policies generates excess stock returns of about 10 percent per year. Chintrakarn *et al*. (2020) focus on the effects of LGBT friendliness on credit ratings which directly influence the firm's borrowing costs. Their findings demonstrate that more LGBT-friendly firms have better credit ratings, suggesting that LGBT-friendly policies may pay off for the firms by reducing the cost of debt and advancing access to external financing.

Most directly related to our study, Pichler *et al*. (2018) and Shan *et al*. (2017) investigate the relationship between LGBT-friendly corporate policies and firm performance. Using data on US firms for the years 1996–2009, Pichler *et al*. (2018) document that the impact of LGBT-friendly corporate policies on profitability and stock market valuation is positive only for firms engaged in research and development activities. Interestingly, their results indicate that LGBT-friendly firms without R&D activities are associated with lower profitability and have no difference in market valuation relative to less LGBT-friendly firms. Shan *et al*. (2017) use data on large US firms over the bullish, pre-crisis period 2002–2006 to examine the influence of LGBT friendliness on stock returns, stock market valuation and net income per employee. Their empirical findings demonstrate that firms with more LGBT-friendly policies have higher risk-adjusted stock returns, higher stock market valuations, and higher income per employee.

In this paper, we take a new perspective on the effects of LGBT friendliness on firm performance. Specifically, using data on 657 publicly traded US firms over the period 2003–2016, we examine how LGBT-friendly corporate policies influence the firm's stock market valuation and profitability. Furthermore, given that the relationship is likely to depend on stakeholders' socio-political preferences, we also investigate whether normative social values moderate the linkage between LGBT-friendly policies and firm performance.

This paper contributes to the literature in three main respects. First, while our paper builds on the work of Pichler *et al*. (2018) and Shan *et al*. (2017), we aim to provide rigorous new evidence on the relationship between LGBT-friendly policies and firm performance by utilising a refined empirical approach which facilitates causal inferences. Second, we extend Pichler *et al*. (2018) and Shan *et al*. (2017) by assessing how stakeholders' normative social values influence the relation between LGBT-friendly policies and firm performance. Although both the stakeholder theory and the HRM theories related to employee satisfaction and diversity management can be used to hypothesise a positive association between LGBT friendliness and firm performance, both mechanisms also suggest that the linkage is likely to depend on stakeholders' social values and preferences. As noted by Kaplan (2006), Day and Greene (2008) and Wettstein and Baur (2016), the adoption of LGBT-friendly policies may lead to stakeholder alienation and backlash if the policies conflict with the social values of the key stakeholders. Thus, we investigate how social norms potentially moderate the link between LGBT-friendly policies and firm performance by exploiting regional differences in social conservatism in our empirical analysis.[4] Finally, given the positive shift in general societal attitude towards sexual minorities over the past decade, we aim to reinforce the prior empirical evidence by using a long, more recent sample period which allows us

[4]Kitzmueller and Shimshack (2012) and Cahan *et al*. (2020) argue that locally accepted social norms, views and values may discipline firms into certain social behaviour.

to examine how the relationship between LGBT friendliness and firm performance has evolved over time and under different market conditions.

In our empirical analysis, we follow Shan *et al.* (2017) and utilise the Corporate Equality Index (CEI) constructed by the Human Rights Campaign to measure firm-level LGBT friendliness.[5] The CEI is considered to provide a comprehensive assessment of a firm's LGBT friendliness in terms of corporate policies and practices pertaining to LGBT employees as well as public advocacy related to the rights of sexual minorities. With respect to firm performance, we use Tobin's Q as a proxy for stock market valuation and measure firm profitability with return on assets (ROA). We empirically test the hypothesis that LGBT-friendly corporate policies are positively associated with firm performance by using fixed-effects panel regressions in which we control for a wide variety of firm characteristics including the level of engagement in CSR activities and overall employee satisfaction. To alleviate endogeneity concerns and facilitate causal inferences, we utilise two-stage instrumental variable regressions and propensity score matching in our additional tests. Following Chintrakarn *et al.* (2020), our instrument for firm-level LGBT friendliness is the percentage of the LGBT population in the firm's headquarter state which arguably should not have any conceptual relation to the performance of individual firms. Finally, we exploit regional variation in religiousness and presidential election results to examine whether and how social norms and attitudes influence the link between LGBT-friendly policies and firm performance.

Our empirical findings demonstrate that LGBT-friendly corporate policies pay off. Specifically, we document that firms with more LGBT-friendly policies are more profitable and have higher stock market valuations after controlling for firm attributes such as size, riskiness, growth and engagement in social responsibility. The documented positive relationship between LGBT friendliness and firm performance can be considered economically significant; our estimates suggest that a one standard deviation increase in the firm's CEI is associated with an about 7 percent increase in stock market valuation and approximately 50 basis point increase in ROA.

These results should be compared and contrasted to the partially contradictory evidence provided in the prior studies. While Pichler *et al.* (2018) do not find any differences in market valuations between more and less LGBT-friendly firms unless the firms are engaged in research and development activities, the findings of Shan *et al.* (2017) indicate that a one standard deviation increase in CEI would increase the firm's market valuation by about 3 percent. Therefore, our empirical findings extend the earlier evidence by demonstrating an economically much stronger and statistically highly significant positive relationship between LGBT-friendly policies and stock market valuation.

[5]The empirical analysis in Pichler *et al.* (2018) is based on a dummy variable for firms that have adopted LGBT-supportive corporate policies.

Moreover, in contrast to the negative association between LGBT friendliness and profitability documented in Pichler *et al.* (2018), our findings provide considerable evidence to suggest that more LGBT-friendly firms are associated with significantly higher ROA.[6]

With respect to the influence of socio-political norms and attitudes towards sexual minorities, we contribute to the prior literature by documenting that regional differences in the religious and political leanings moderate the relationship between LGBT-friendly policies and firm performance. In particular, our empirical findings demonstrate that the positive effect of progressive LGBT policies on profitability and market valuation is more pronounced for firms located in more liberal states while being weaker or non-existent for firms located in more conservative states. Our results suggest that a standard deviation increase in the firm's CEI increases stock market valuation by almost 7 percent in less religious and decisively Democratic states and by about 3 percent in more religious and decisively Republican states. Nevertheless, it is worthwhile to emphasise that even for firms located in more socially conservative states, the effect of LGBT friendliness on firm performance is positive or at worst neutral, suggesting that the adoption of LBGT-friendly policies does not generally have detrimental repercussions.

2. Data and variables

The sample used in our empirical analysis consists of 657 publicly traded US firms over the period 2003–2016. Our main analysis requires data on the firms' (i) LGBT friendliness, (ii) financial statements, (iii) stock prices and (iv) corporate social responsibility and governance attributes. We measure firm-level LGBT friendliness with the Corporate Equality Index (CEI) scores obtained from the Human Rights Campaign. The data on the firms' income statement and balance sheet variables, stock prices, and environmental, social and corporate governance (ESG) scores are obtained from Thomson Reuters. In our additional tests, we also utilise state-level data on religiousness, US presidential election results and LGBT demographics. These data are collected from Gallup, the US National Archives and Records Administration, and the UCLA Williams Institute, respectively.

We restrict our sample to firms for which the CEI score and the financial data are available for at least five consecutive years. After excluding penny stocks and firms with missing data, we obtain an unbalanced panel of 657 individual

[6]Instead of examining the impact of LGBT-friendly policies on ROA (i.e., the ratio of net income to total assets), Shan *et al.* (2017) focus on the ratio of gross income to the number of employees.

firms and approximately 3,000 usable firm-year observations for our main regressions.[7] The final sample includes firms from all major industries that are headquartered across 42 different US states.

2.1. LGBT friendliness

Following Johnston and Malina (2008), Wang and Schwarz (2010), Everly and Schwarz (2015) and Shan *et al.* (2017), we use the Corporate Equality Index (CEI) constructed by the Human Rights Campaign to measure firm-level LGBT friendliness. The Human Rights Campaign is the largest LGBT civil rights advocacy organisation in the US and it has published the CEI for large US firms annually since 2002. The CEI provides a comprehensive assessment of a firm's LGBT friendliness in terms of corporate policies and practices pertaining to lesbian, gay, bisexual and transgender employees and public advocacy related to the rights of sexual minorities. The Human Rights Campaign compiles and constructs the CEI based on self-reported surveys as well as SEC filings, employee resource groups, press releases and news articles during the year leading up to the date of publication.[8] The surveys underlying the CEI are sent to the S&P 500 firms, the Fortune 1000 firms, the firms in the Forbes' list of 200 largest privately held companies, and other US firms with at least 500 employees.[9] In our empirical analysis, the sample is constrained to publicly traded firms.

The CEI is based on five main criteria related to firms' employee policies, workplace equality, diversity culture and competency, and public statements and actions related to either advocacy or discrimination of sexual minorities. The criteria underlying the CEI are summarised in Table 1. Each of the considered criteria is given a specific amount of points and the CEI is then constructed for each firm as the sum of the points of the individual evaluation criteria. Consequently, the CEI may take values between −25 and 100 with higher values of the index corresponding to more LGBT-friendly corporate

[7]The number of firm-year observations in our main panel regressions varies from 2,858 to 3,071 depending on the model specification.

[8]The CEI is released by the Human Rights Campaign during the autumn of each year. Since 2007, the CEI has been published in a forward-looking manner so that the report published in the autumn of each year is labelled as the CEI for the upcoming calendar year. In our empirical analysis, we use the actual year of publication of the CEI throughout the sample period to maintain conformity (i.e., the 2017 CEI scores published in the autumn of 2016 are used for calendar year 2016).

[9]The number of firms covered by the CEI has gradually increased over the sample period. In 2002, the Human Rights Campaign surveyed the Fortune 500 firms, the firms in the Forbes' list of 200 largest privately-held companies, and other US firms with at least 500 employees.

Table 1
The criteria underlying the Corporate Equality Index (CEI)

Criteria 1	Equal Employment Opportunity policies	
	a) Sexual orientation for all operations	15 points
	b) Gender identity for all operations	15 points
	c) Contractor/vendor standards include sexual orientation and gender identity	5 points
Criteria 2	Employment benefits	
	a) Equivalent spousal and partner benefits	10 points
	b) Other 'soft' benefits	10 points
	c) Transgender-inclusive health insurance coverage	10 points
Criteria 3	Organisational LGBT competency	
	a) Competency training, resources and accountability measures	10 points
	b) Employee group or Diversity council	10 points
Criteria 4	Public commitment	
	LGBT-specific efforts (recruitment, philanthropy, etc.)	15 points
Criteria 5	Deductions for large-scale anti-LGBT blemish	
	25-point reduction for recent cases of LGBT discrimination	100 points

policies and practices. In our empirical analysis, we restrict the sample to publicly traded firms with non-zero CEI scores.[10]

2.2. Local socio-political values

We aim to contribute to the prior literature by examining whether local social values moderate the linkage between LGBT-friendly policies and firm performance. For this purpose, we use the addresses of firms' headquarters and utilise state-level data on religiousness and the US presidential election results from 2004 to 2016 to divide our sample into subsamples of firms located in more liberal and more conservative states.

We define a firm to be located in a conservative state if the Republican candidate won the presidential elections in that state with a margin of at least 5 percent and more than two-thirds of the state population consider themselves to be 'highly religious'. Correspondingly, a firm is located in a liberal state if the Democratic candidate won the presidential elections in that state with a margin

[10]We restrict the sample to firms with non-zero CEI scores in order to alleviate potential self-selection bias. During the latter half of the sample period, the Human Rights Campaign has published the CEI also for firms that have not responded to the survey and have not acquiesced to provide information regarding their employee policies and the management of sexual orientation diversity. This inconsistency in the requirement for voluntary disclosure is mainly manifested in the increase in CEI scores of 0 during the latter half of our sample. In the robustness checks discussed in Section 3.5, we perform three additional tests to ensure that our results are not influenced by non-voluntary CEI scores.

of at least 5 percent and less than one-third of the state population consider themselves to be 'highly religious'. We use a conservative approach to assigning state-level political stance by requiring a winning margin of at least 5 percent and by carrying the election results backward over the four years leading up to the election in order to alleviate concerns that political changes may affect future corporate policies.[11] It may be argued, of course, that the location of the firm's headquarters is an imperfect proxy for the social attitude of the firm's stakeholders given that most large firms are operating globally. The counter-argument is that corporate cultures are sticky and firms tend to be entrenched in social values prevalent in their place of origin. As noted, for example, by Hilary and Hui (2009), Kitzmueller and Shimshack (2012) and Cahan *et al.* (2020), the firm's environment and locally accepted social norms, views and values may discipline firms into certain behaviour.

2.3. Firm performance

Following the prior literature (e.g., Huselid, 1995; Waddock and Graves, 1997; Faleye and Trahan, 2011; Servaes and Tamayo, 2013; Chen and Jermias, 2014; Pichler *et al.*, 2018), we measure firm performance with stock market valuation and profitability. We employ the logarithm of Tobin's Q as a proxy for market valuation. Tobin's Q is calculated as the sum of the firm's market value of equity and the book value of liabilities divided by the book value of total assets. We measure firm profitability with return on assets (ROA) which is calculated as net income divided by the book value of total assets.

2.4. Control variables

We include a number of control variables in our empirical analysis to account for the effects of firm-specific factors such as size, financial leverage, growth and riskiness on firm performance. Specifically, the following set of control variables is used in the regressions: (i) *Size* is measured as the logarithm of total assets, (ii) *Leverage* is the ratio of total debt to book value of equity, (iii) *Growth* is the percentage change in sales from year $t - 1$ to year t, (iv) *Risk* is the firm's beta coefficient which is estimated against the S&P 500 index using daily stock return data for year t, (v) *ESG* is the Thomson Reuters ESG score which is used as a proxy for the firm's environmental and social responsibility and the strength of corporate governance mechanisms, (vi) *Board size* is the number of members on the firm's board of directors, and (vii) *Board independence* is measured as the percentage of independent directors on the board. In the regressions with *Tobin's Q* as the dependent variable, we also include *ROA* as an additional control variable. These control variables are

[11]This means that the results of the 2016 Trump vs. Clinton election, for instance, are utilised for determining state-level political stance for years 2013–2016.

selected based on the existing firm performance literature (see, e.g., Capon *et al*., 1990; Huselid, 1995; Waddock and Graves, 1997; Aldamen *et al*., 2012; Cahan *et al*., 2015; Frijns *et al*., 2016; Shan *et al*., 2017). In addition, we control for potential biases related to omitted and/or unobservable variables with industry fixed-effects based on standard industrial classification (SIC) codes and we account for potential time fixed-effects by including fiscal year dummy variables in the regressions.

2.5. Instrumental variable

In our additional tests, we address endogeneity concerns with two-stage instrumental variable regressions. Following Chintrakarn *et al*. (2020), our choice of the instrumental variable for firm-level LGBT friendliness is the percentage of the state population that identifies as lesbian, gay, bisexual or transgender.

3. Empirical analysis

3.1. Descriptive statistics and correlations

Table 2 reports descriptive statistics for LGBT friendliness (*CEI score*), our two alternative dependent variables (*Tobin's Q* and *ROA*), and the control variables used in the regressions. All variables are presented in their original forms without logarithms or any other transformations. The mean *CEI score* for the firms included in our sample is 68.1 with a standard deviation of 33.7 and the 25th to 75th percentile range from 40 to 100, indicating that the level of LGBT friendliness varies considerably across firms. Nevertheless, the relatively high mean *CEI score* may be indicative of a possible voluntary response bias in the CEI because firms that have implemented LGBT-friendly corporate policies or acknowledge the importance of diversity management may be more likely to respond to the Human Rights Campaign's survey.[12]

Table 2 demonstrates that the firms included in our sample exhibit considerable dispersion in terms of performance. *Tobin's Q*, our measure of market valuation, has a mean value of 2.00 and ranges from 0.82 to 6.98. Firm profitability, as measured by *ROA*, varies between −24.87 and 24.71 percent, with a mean of 6.47 percent. With respect to the control variables, the descriptive statistics in Table 2 indicate that our sample is very heterogeneous in terms of firm size, leverage, growth, riskiness and ESG performance.

Table 3 presents the bivariate correlation coefficients between the variables used in our empirical analysis. As can be seen from the table, *CEI score* is significantly positively correlated with *Tobin's Q* and *ROA*. Thus, consistent

[12]In the robustness checks in Section 3.5, we conduct several additional tests to ensure that our results are not influenced by biases related to voluntary disclosure.

Table 2
Descriptive statistics

Variable	Mean	Median	P1	P25	P75	P99	SD	No. of obs.
LGBT friendliness								
CEI score	68.07	80.00	0.00	40.00	100.00	100.00	33.68	3,123
Firm performance								
Tobin's Q	2.00	1.69	0.82	1.16	2.13	6.98	1.08	3,123
ROA	6.47	6.30	−24.87	1.71	8.69	24.71	7.61	3,123
Control variables								
Size	38826.95	13713.33	249.72	3285.61	26415.42	857574.5	98301.93	3,123
Leverage	1.43	0.56	−21.76	0.18	1.00	25.25	25.76	3,123
Growth	4.97	4.35	−42.04	−0.87	14.22	102.06	15.94	3,123
Risk	1.09	1.03	0.09	0.77	1.43	3.02	0.51	3,123
ESG	46.58	43.07	17.13	33.81	52.93	84.94	15.97	3,123
Board size	11.07	11.00	6.00	9.00	12.00	18.00	2.06	3,123
Board independence	81.79	84.62	33.33	75.00	90.00	93.75	11.51	3,123

The table reports summary statistics for the sample of 657 publicly traded US firms over the period 2003–2016. LGBT friendliness is measured with the Corporate Equality Index (*CEI score*) constructed by the Human Rights Campaign. The dependent variables are defined as follows: *Tobin's Q* is the sum of the firm's market value of equity and the book value of liabilities divided by the book value of total assets and *ROA* is calculated as net income divided by the book value of total assets. The control variables are defined as follows: *Size* is measured with the firm's total assets, *Leverage* is the ratio of total debt to book value of equity, *Growth* is the percentage change in sales from year $t-1$ to year t, *Risk* is the firm's beta coefficient, *ESG* is the Thomson Reuters Environmental, Social and Governance responsibility score, *Board size* is the number of members on the firm's board of directors, and *Board independence* is the percentage of independent directors on the board.

with the hypothesis that LGBT friendliness improves firm performance, the correlations suggest that firms with more LGBT-friendly corporate policies are more profitable and have higher stock market valuations. Table 3 further shows that *CEI score* is significantly positively correlated with *Size*, *ESG* and *Board size*, and negatively correlated with *Risk*, indicating that LGBT-friendly firms tend to be larger, more socially responsible, less risky and have larger boards of directors.

As expected, our two firm performance measures *Tobin's Q* and *ROA* are strongly positively correlated with each other. The firm performance measures are also statistically significantly correlated with most of our control variables. Regarding the correlations among the control variables, it can be concluded from Table 3 that multicollinearity should not be a concern in our regressions because all the correlation coefficients between the independent variables are relatively low in magnitude, all being less than 0.4.

Table 3
Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) CEI score									
(2) Tobin's Q	0.158*								
(3) ROA	0.100*	0.613*							
(4) Size	0.240*	−0.206*	−0.099*						
(5) Leverage	−0.032	−0.069*	−0.165*	0.006					
(6) Growth	−0.014	0.214*	0.210*	0.012	−0.036				
(7) Risk	−0.164*	−0.260*	−0.338*	−0.097*	0.064*	−0.047			
(8) ESG	0.104*	0.055*	0.099*	−0.015	−0.027	−0.064*	−0.019		
(9) Board size	0.190*	−0.058*	0.029	0.388*	0.004	−0.024	−0.167*	0.031	
(10) Board independence	0.035	−0.023	0.022	0.116*	−0.006	−0.077*	−0.034	0.251*	0.062*

The table reports pairwise correlations between the variables used in the main regressions. LGBT friendliness is measured with the Corporate Equality Index (*CEI score*) constructed by the Human Rights Campaign. The dependent variables are defined as follows: *Tobin's Q* is the sum of the firm's market value of equity and the book value of liabilities divided by the book value of total assets and *ROA* is calculated as net income divided by the book value of total assets. The control variables are defined as follows: *Size* is measured as the logarithm of the firm's total assets, *Leverage* is the ratio of total debt to book value of equity, *Growth* is the percentage change in sales from year $t-1$ to year t, *Risk* is the firm's beta coefficient, *ESG* is the Thomson Reuters Environmental, Social and Governance responsibility score, *Board size* is the number of members on the firm's board of directors, and *Board independence* is the percentage of independent directors on the board. All variables are winsorised at the 1st and 99th percentiles. * denotes statistical significance at the 0.01 level.

3.2. Main results

We test our main research hypothesis that LGBT-friendly corporate policies are positively associated with firm performance by estimating alternative versions of the following panel regression specification:

$$\begin{aligned} Performance_{i,t} &= \alpha + \beta\, CEI\,score_{i,t} + \gamma(Firm\text{–}specific\ controls)_{i,t} \\ &\quad + \omega(Industry\,fixed\text{–}effects)_{i,t} + \varphi(Year\,fixed\text{–}effects)_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where the dependent variable $Performance_{i,t}$ is one of the two alternative firm performance measures (*Tobin's Q* or *ROA*) for firm i at time t and $CEI\,score_{i,t}$ is the Corporate Equality Index for firm i at time t which is our proxy for firm-level LGBT friendliness. The firm-specific control variables in Equation (1) are *Size*, *Leverage*, *Growth*, *Risk*, *ESG*, *Board size* and *Board independence*. In the regressions with *Tobin's Q* as the dependent variable, we also include *ROA* as

an additional control variable. This set of control variables should account for the potentially confounding effects of firm characteristics on profitability and market valuation. Equation (1) also includes industry fixed-effects to control for systemic variation in firm performance across different industries as well as potential biases related to omitted variables and unobserved heterogeneity. Moreover, we account for systematic variation in firm performance over time by including year fixed-effects in the regressions. All variables in Equation (1) are winsorised at the 1st and 99th percentiles to moderate the effects of outliers. Throughout the estimations, we use robust standard errors that are adjusted for heteroskedasticity and clustered by firm.

The estimation results of four alternative versions of Equation (1) are reported in Table 4. The dependent variable is *Tobin's Q* in Models 1 and 2 and *ROA* in Models 3 and 4. Furthermore, Models 1 and 3 are baseline regressions without industry and year fixed-effects and with a constrained set of control variables (Models 1 and 3), whereas Models 2 and 4 include the full set of firm-specific controls as well as industry and year fixed-effects. As shown in Table 4, the *F*-statistics are statistically significant at the 1 percent level in all four model specifications, and the adjusted R^2s indicate that our panel regressions explain about 50 percent of the variation in *Tobin's Q* and about 20 percent of the variation in *ROA*.

Overall, the regression results in Table 4 indicate that LGBT friendliness is positively associated with firm performance. The coefficient estimates for *CEI score* are positive and statistically significant at the 1 percent level in every model specification, suggesting that firms with more LGBT-friendly corporate policies are more profitable and have higher stock market valuations. In addition to being statistically highly significant, the positive relationship between LGBT friendliness and firm performance can also be considered economically significant. The magnitudes of the estimated coefficients suggest that a one standard deviation increase in *CEI score* would increase the firm's market valuation by approximately 7 percent and return on assets by about 47 to 51 basis points. Overall, the estimates reported in Table 4 provide strong support for our hypothesis that LGBT-friendly corporate policies improve firm performance.

With respect to stock market valuation, our regression results in Table 4 should be compared and contrasted to the findings of Shan *et al.* (2017) and Pichler *et al.* (2018). Using the Corporate Equality Index over the period 2002–2006, Shan *et al.* (2017) document that a ten-point increase in *CEI score* would be associated with an approximately 1 percent increase in stock market valuation. On the other hand, Pichler *et al.* (2018), who base their analysis on a dummy variable for firms with LGBT-supportive corporate policies and use MSCI ESG data over the period 1996–2009, do not find any significant differences in market valuations between more and less LGBT-friendly firms unless the firms are engaged in research and development activities. Therefore, our empirical findings extend the earlier results of Shan *et al.* (2017) and Pichler

Table 4
Regression results

	Tobin's Q		*ROA*	
	Model 1	Model 2	Model 3	Model 4
Constant	0.921***	0.976***	15.536***	14.026***
	(9.78)	(8.03)	(11.14)	(7.45)
CEI score	0.002***	0.002***	0.014***	0.015***
	(5.14)	(5.15)	(2.66)	(2.77)
Size	−0.067***	−0.071***	−0.825***	−0.792***
	(−7.52)	(−6.92)	(−5.98)	(−4.77)
Leverage	0.003	0.003	−0.219***	−0.211***
	(1.53)	(1.33)	(−4.59)	(−4.36)
ROA	0.039***	0.038***		
	(16.86)	(16.25)		
Growth	0.003***	0.003***	0.074***	0.073***
	(3.18)	(3.56)	(7.08)	(6.72)
Risk	−0.099***	−0.091***	−3.698***	−3.295***
	(−5.91)	(−5.03)	(−11.54)	(−8.98)
ESG	0.000	0.000	0.038***	0.033***
	(−0.07)	(−0.65)	(3.92)	(3.30)
Board size		0.000		0.082
		(0.13)		(0.85)
Board independence		0.000		0.001
		(−0.44)		(0.08)
Industry fixed-effects	No	Yes	No	Yes
Period fixed-effects	No	Yes	No	Yes
No. of observations	2,868	2,858	3,071	3,060
Adjusted R^2	0.49	0.53	0.20	0.22
F-stat.	388.19***	122.66***	132.82***	36.39***

The table reports the estimates of four alternative versions of Equation (1). LGBT friendliness is measured with the Corporate Equality Index (*CEI score*) constructed by the Human Rights Campaign. The dependent variables are defined as follows: *Tobin's Q* is the logarithm of the sum of the firm's market value of equity and the book value of liabilities divided by the book value of total assets and *ROA* is calculated as net income divided by the book value of total assets. The control variables are defined as follows: *Size* is measured as the logarithm of the firm's total assets, *Leverage* is the ratio of total debt to book value of equity, *Growth* is the percentage change in sales from year $t-1$ to year t, *Risk* is the firm's beta coefficient, *ESG* is the Thomson Reuters Environmental, Social and Governance responsibility score, *Board size* is the logarithm of the number of members on the firm's board of directors, and *Board independence* is the percentage of independent directors on the board. All variables are winsorised at the 1st and 99th percentiles. The *t*-statistics (in parentheses) are based on robust standard errors which are adjusted for heteroskedasticity and are clustered by firm. ***, ** and * denote statistical significance at the 0.01, 0.05 and 0.10 levels, respectively.

et al. (2018) by demonstrating that LGBT-friendly corporate policies are strongly positively associated with stock market valuation over the period 2003–2016.

While Shan *et al*. (2017) do not examine the relationship between LGBT friendliness and firm profitability, Pichler *et al*. (2018) document that more LGBT-friendly firms without engagement in R&D activities are associated with significantly lower ROA. However, their findings also indicate that LGBT-friendly firms with R&D activities are more profitable and have an approximately one percentage point higher ROA. Intriguingly, in stark contrast to the negative association between LGBT friendliness and profitability documented in Pichler *et al*. (2018), our results reported in Table 4 provide strong evidence to suggest that firms with more LGBT-friendly corporate policies have higher profitability. These contrasting findings with respect to firm profitability may be at least partially reconciled by considering the differences in the LGBT friendliness proxies (CEI score vs. MSCI ESG dummy) and the sample periods (2003–2016 vs. 1996–2009) used in the respective empirical analyses.

As can be noted from Table 4, the coefficient estimates for most of our control variables are statistically highly significant, demonstrating the importance of these variables as determinants of firm market valuation and profitability. Specifically, the regression results suggest that firm performance is negatively associated with *Size*, *Leverage* and *Risk*, while being significantly positively related to *Growth* and *ESG*. Furthermore, as expected, the regressions with *Tobin's Q* as the dependent variable indicate that stock market valuation is strongly positively associated with firm profitability ($p < 0.01$).

Although both the stakeholder theory and the HRM theories related to employee satisfaction and diversity management can be used to hypothesise a positive association between LGBT friendliness and firm performance, both mechanisms also suggest that the linkage is likely to depend on stakeholders' values and preferences. Therefore, we next investigate whether and how regional differences in conservatism and the general social attitude towards sexual minorities potentially moderate the link between LGBT-friendly policies and firm performance. For this purpose, we use the addresses of the firms' headquarters and state-level data on religiousness and the US presidential election results to split our sample into subsamples of firms located in more liberal and more conservative states. We then estimate alternative versions of Equation (1) using the two subsamples.

Table 5 reports the estimation results of Equation (1) based on the subsamples of firms located in more liberal and more conservative states. Similar to Table 4, *Tobin's Q* is used as the dependent variable in Models 1 and 2 and *ROA* in Models 3 and 4. All four regression specifications in Table 5 include the full set of firm-specific control variables and account for industry and year fixed-effects. As can be seen from the table, the *F*-statistics are

Table 5
The influence of social norms on the relation between LGBT friendliness and firm performance

	Tobin's Q		*ROA*	
	Liberal	Conservative	Liberal	Conservative
Constant	0.817***	0.605*	−11.085***	9.685***
	(3.81)	(1.82)	(−2.72)	(2.68)
CEI score	0.002**	0.001*	0.030*	0.018
	(2.14)	(1.65)	(1.93)	(1.64)
Size	−0.041**	−0.031	−1.063***	−0.764**
	(−2.01)	(−1.26)	(−2.89)	(−2.44)
Leverage	0.007	0.006	−0.176	−0.222***
	(1.12)	(1.44)	(−1.03)	(−3.05)
ROA	0.044***	0.036***		
	(9.04)	(8.17)		
Growth	0.006**	−0.000	0.078***	0.074***
	(2.41)	(−0.12)	(3.36)	(3.65)
Risk	−0.077*	−0.092***	−3.128***	−2.867***
	(−1.85)	(−2.62)	(−3.84)	(−5.09)
ESG	−0.000	−0.000	0.053***	0.046**
	(−0.32)	(−0.09)	(2.77)	(2.06)
Board size	−0.009	0.009	0.103	0.383***
	(−0.64)	(0.77)	(0.44)	(2.96)
Board independence	−0.000	−0.000	0.034	0.003
	(−0.14)	(−0.22)	(1.06)	(0.14)
Industry fixed-effects	Yes	Yes	Yes	Yes
Period fixed-effects	Yes	Yes	Yes	Yes
No. of observations	552	609	597	624
Adjusted R^2	0.62	0.45	0.26	0.26

The table reports the estimates of four alternative versions of Equation (1) based on subsamples of firms located in more liberal and more conservative states. A firm is located in a conservative state if the Republican candidate won the presidential elections with a margin of at least 5 percent and more than two-thirds of the state population consider themselves to be highly religious. Correspondingly, a firm is located in a liberal state if the Democratic candidate won the presidential elections with a margin of at least 5 percent and less than one-third of the state population consider themselves to be highly religious. LGBT friendliness is measured with the Corporate Equality Index (*CEI score*) constructed by the Human Rights Campaign. The dependent variables are defined as follows: *Tobin's Q* is the logarithm of the sum of the firm's market value of equity and the book value of liabilities divided by the book value of total assets and *ROA* is calculated as net income divided by the book value of total assets. The control variables are defined as follows: *Size* is measured as the logarithm of the firm's total assets, *Leverage* is the ratio of total debt to book value of equity, *Growth* is the percentage change in sales from year $t-1$ to year t, *Risk* is the firm's beta coefficient, *ESG* is the Thomson Reuters Environmental, Social and Governance responsibility score, *Board size* is the logarithm of the number of members on the firm's board of directors, and *Board independence* is the percentage of independent directors on the board. All variables are winsorised at the 1st and 99th percentiles. The *t*-statistics (in parentheses) are based on robust standard errors which are adjusted for heteroskedasticity and are clustered by firm. ***, ** and * denote statistical significance at the 0.01, 0.05 and 0.10 levels, respectively.

significant at the 1 percent level in every model and the adjusted R^2s indicate a relatively good fit of the estimated regressions.

The estimates in Table 5 demonstrate that the positive association between LGBT-friendly corporate policies and firm performance is stronger for firms located in more liberal (i.e., less religious and decisively Democratic) states while being weaker or non-existent for firms located in more conservative (i.e., more religious and decisively Republican) states. Specifically, in both subsamples, the estimated coefficients for *CEI score* are positive and statistically significant in the regressions with *Tobin's Q* as the dependent variable, indicating that LGBT-friendly firms have higher market valuations. However, for firms located in more liberal states, the coefficient estimate of *CEI score* is larger in magnitude as well as being statistically more significant. The estimates of Models 1 and 2 in Table 5 suggest that a one standard deviation increase in *CEI score* for firms located in more liberal states increases their stock market valuation by approximately 7 percent, whereas a corresponding increase for firms in more conservative states is about 3 percent.

In the regressions with *ROA* as the dependent variable, the estimated coefficient of *CEI score* is positive and statistically significant for firms located in more liberal states and insignificant at conventional levels ($p = 0.102$) for firms headquartered in more conservative states. Thus, our findings suggest that the positive association between LGBT-friendly corporate policies and profitability pertains more to firms that are located in less religious and decisively Democratic states. For these firms, a ten-point increase in *CEI score* would be associated with an about 30 basis points increase in *ROA*. Consistent with the regressions reported in Table 4, the coefficient estimates for the control variables demonstrate that firm performance is significantly negatively associated with *Size*, *Leverage* and *Risk*, while being positively related to *Growth*, *ESG* and *Board size*.

In general, the regression results presented in Tables 4 and 5 provide strong evidence that firms with more LGBT-friendly corporate policies are associated with higher profitability and higher stock market valuation. Our empirical findings further demonstrate that the positive effect of progressive LGBT policies is more pronounced for firms that are headquartered in less religious and decisively Democratic states and is weaker or non-existent for firms located in more religious and decisively Republican states. This suggests that regional differences in political and religious leanings moderate the relationship between LGBT-friendly policies and firm performance.

3.3. Instrumental variable regressions and propensity score matching

Given that our research hypothesis implies that LGBT-friendly corporate policies improve firm performance, it is important to acknowledge that our preceding analysis may suffer from endogeneity and reverse causality. In our panel regressions, we have controlled for a number of firm-specific

characteristics that are known to affect profitability and market valuation. Moreover, we have attempted to control for potential biases related to omitted correlated variables that may influence firm performance by including industry and year fixed-effects in the regressions. Nevertheless, it is possible that some unobservable or omitted firm attributes simultaneously affect firm performance and the implementation of LGBT-friendly policies. It is also plausible that firms that have better financial performance can allocate more resources to employee relations and societal activities, potentially leading to reverse causality from firm performance to LGBT friendliness. As the next step of our analysis, we utilise two-stage instrumental variable regressions and propensity score matching in order to alleviate endogeneity concerns and to establish a causal link between LGBT-friendly corporate policies and firm performance.

First, we address endogeneity concerns by estimating two-stage instrumental variable regressions. Following Chintrakarn *et al.* (2020), our choice of the instrumental variable for firm-level LGBT friendliness is the percentage of the state population that identifies as lesbian, gay, bisexual or transgender. We posit that the percentage of the LGBT population in a given state should be positively related to the implementation of LGBT-friendly corporate policies, while it arguably should not have any conceptual relation to the performance of individual firms. Accordingly, in the first-stage regression, we model *CEI score* as a function of *LGBT population* and the set of control variables used in Equation (1). In the second-stage regressions, *Tobin's Q* and *ROA* are regressed on the instrumented CEI score and our firm-specific control variables.

The estimates of the two-stage instrumental variable regressions are presented in Table 6. As can be seen from the table, the estimated coefficient for the instrumental variable *LGBT population* is positive and statistically highly significant (t-stat = 4.08) in the first-stage regression with *CEI score* as the dependent variable. This demonstrates that our instrument is strongly positively associated with the implementation of LGBT-friendly corporate policies. Furthermore, the high partial F-statistics of the first-stage regressions as well as the LM test for underidentification and the Wald test for weak identification all indicate that *LGBT population* is a valid instrument for *CEI score*, thereby suggesting that our instrumental variable estimates should not be plagued by a weak-instrument problem. The first-stage regressions in Table 6 also indicate that LGBT friendliness is positively associated with *Size*, *ESG* and *Board size* and negatively associated with *Risk*.

The estimates of the second-stage regressions with the instrumented CEI score are very similar to the results reported in Table 4. Most importantly, the coefficient estimates for the instrumented CEI score are positive and statistically highly significant both in the *Tobin's Q* and *ROA* regressions, suggesting that more LGBT-friendly firms have higher profitability and stock market valuation even after controlling for potential endogeneity. Therefore, the instrumental variable regressions in Table 6 provide support for the hypothesis

that LGBT-friendly corporate policies improve firm performance. With respect to the control variables, the estimates of the second-stage regressions are consistent with our main analysis with the only exception being the insignificant coefficients for *ESG* in both second-stage models.

We aim to further mitigate endogeneity concerns by utilising propensity score matching. Specifically, we use all the control variables included in Equation (1) to estimate propensity scores for the sample firms and then use these scores to identify a matched sample of less LGBT-friendly firms that are statistically indistinguishable from the most LGBT-friendly firms in terms of size, riskiness, ESG engagement, and other firm-specific controls. If the only observable difference between the matched firms is their *CEI score*, there should presumably not be any differences in *Tobin's Q* and *ROA* unless firm performance is affected by LGBT friendliness. We utilise one-to-one nearest neighbour matching without replacement and require that the maximum

Table 6
Instrumental variable regressions

Variable	First-stage regression	Second-stage regressions	
	CEI score	*Tobin's Q*	*ROA*
Constant	−36.460**	0.977***	13.730***
	(−2.36)	(7.17)	(6.61)
Instrumental variables			
LGBT population	10.233***		
	(4.16)		
Independent variables			
Instrumented CEI score		0.006***	0.074**
		(2.86)	(2.33)
Size	4.680***	−0.090***	−1.073***
	(4.76)	(−6.54)	(−4.62)
Leverage	−0.150	0.003	−0.198***
	(−0.58)	(1.33)	(−4.15)
ROA		0.037***	
		(14.28)	
Growth	−0.046	0.003***	0.075***
	(−1.09)	(3.82)	(6.71)
Risk	−5.853***	−0.070***	−2.961***
	(−3.52)	(−3.01)	(−7.12)
ESG	0.212***	−0.001	0.018
	(3.90)	(−1.56)	(1.46)
Board size	1.257**	−0.005	−0.001
	(2.35)	(−0.66)	(−0.01)
Board independence	0.079	−0.000	−0.000
	(0.79)	(−0.51)	(−0.04)
Industry fixed-effects	Yes	Yes	Yes

(continued)

Table 6 (continued)

Variable	First-stage regression *CEI score*	Second-stage regressions *Tobin's Q*	*ROA*
Period fixed-effects	Yes	Yes	Yes
No. of observations	3,060	2,858	3,060
Adjusted R^2	0.23	0.45	0.14
F-stat.	36.05***	118.34***	36.42***
Partial *F*-stat.	16.73***		
LM stat.		24.58***	24.18***
Wald *F*-stat.		134.16***	131.59***

The table reports the estimates of two-stage instrumental variable regressions. LGBT friendliness is measured with the Corporate Equality Index (*CEI score*) constructed by the Human Rights Campaign. The instrumental variable for *CEI score* is the percentage of the state population that identifies as lesbian, gay, bisexual or transgender. The dependent variables are defined as follows: *Tobin's Q* is the logarithm of the sum of the firm's market value of equity and the book value of liabilities divided by the book value of total assets and *ROA* is calculated as net income divided by the book value of total assets. The control variables are defined as follows: *Size* is measured as the logarithm of the firm's total assets, *Leverage* is the ratio of total debt to book value of equity, *Growth* is the percentage change in sales from year $t-1$ to year t, *Risk* is the firm's beta coefficient, *ESG* is the Thomson Reuters Environmental, Social and Governance responsibility score, *Board size* is the logarithm of the number of members on the firm's board of directors, and *Board independence* is the percentage of independent directors on the board. All variables are winsorised at the 1st and 99th percentiles. The *t*-statistics (in parentheses) are based on robust standard errors which are adjusted for heteroskedasticity and are clustered by firm. ***, ** and * denote statistical significance at the 0.01, 0.05 and 0.10 levels, respectively.

difference between the propensity score of each treatment firm and that of its matched control firm does not exceed 0.1 standard deviations. After identifying matching firms for the most LGBT-friendly firms, we re-estimate alternative versions of Equation (1) using the propensity score matched sample of firms.

Table 7 reports matching diagnostics and the regression results based on the propensity score matched sample. In order to ascertain that the matched firms are sufficiently similar to the treatment firms, we first re-estimate the probit model underlying the propensity score matching using the matched-firm sample. The pseudo R^2 of the post-matching probit model is about 54 percent lower than the pre-matching pseudo R^2 and the post-matching coefficient estimates for all control variables except for *Size* and *ESG* become statistically insignificant. The mean and the mean percentage differences between the propensity scores of the treatment and matched firms are 0.01 and 3.9 percent, respectively. Moreover, the sample means of *Size*, *Leverage*, *Risk* and *ESG* are almost equal for the treatment and matched firms. Therefore, we conclude that the propensity score matching effectively eliminates the observable differences

between the most LGBT-friendly firms and their matched less LGBT-friendly counterparts.

Overall, the regression results based on the propensity score matched sample are very similar to our main regressions, and thereby provide further evidence to suggest that LGBT-friendly corporate policies improve firm performance. Similar to Tables 5 and 6, *Tobin's Q* is used as the dependent variable in Models 1 and 2 and *ROA* in Models 3 and 4, and regressions for both dependent variables are estimated without and with industry and year fixed-effects. As can be noted from Table 7, the coefficients for *CEI score* are positive and statistically highly significant in all four models, indicating that firms with more LGBT-friendly policies are more profitable and have higher stock market valuation even when a propensity score matched sample is used in the regressions. Broadly consistent with our main analysis, the fixed-effects

Table 7
Propensity score matching

	Tobin's Q		*ROA*	
Variable	Model 1	Model 2	Model 3	Model 4
Constant	0.884***	0.938***	7.288**	7.038**
	(4.99)	(5.17)	(2.57)	(2.27)
CEI score	0.001***	0.002***	0.019**	0.020**
	(2.71)	(3.58)	(2.42)	(2.45)
Size	−0.066***	−0.066***	−0.659***	−0.701***
	(−5.19)	(−5.23)	(−3.24)	(−3.30)
Leverage	0.007**	0.005	−0.225**	−0.213**
	(2.07)	(1.45)	(−2.52)	(−2.51)
ROA	0.040***	0.039***		
	(12.03)	(11.82)		
Growth	0.003***	0.004***	0.070***	0.064***
	(3.21)	(3.98)	(4.27)	(3.78)
Risk	−0.103***	−0.103***	−3.282***	−3.056***
	(−4.22)	(−4.12)	(−6.71)	(−6.06)
ESG	0.000	−0.001	0.059***	0.054***
	(0.35)	(−0.79)	(4.06)	(3.50)
Board size	0.001	0.007	0.150	0.148
	(0.15)	(1.08)	(1.23)	(1.20)
Board independence	0.000	−0.001	0.038*	0.031
	(0.25)	(−0.47)	(1.95)	(1.54)
Industry fixed-effects	No	Yes	No	Yes
Period fixed-effects	No	Yes	No	Yes
No. of observations	1,246	1,246	1,246	1,246
Adjusted R^2	0.47	0.54	0.17	0.20
F-stat.	40.24***	31.89***	15.960***	7.820***

(continued)

Table 7 (continued)

	Tobin's Q		*ROA*	
Variable	Model 1	Model 2	Model 3	Model 4
PSM diagnostics				
Pre-matching pseudo R^2	0.13			
Pre-matching LR chi-square	456.38***			
Post-matching pseudo R^2	0.06			
Post-matching LR chi-square	75.11***			
Mean difference	0.010			
Max difference	0.020			
Mean percentage difference	0.039			
Max percentage difference	1.646			

The table reports the estimates of four alternative versions of Equation (1) based on a propensity score matched sample of firms. LGBT friendliness is measured with the Corporate Equality Index (*CEI score*) constructed by the Human Rights Campaign. We utilise propensity score matching to build a matched-firm sample in which the most LGBT-friendly firms with a CEI score of 100 are matched with less LGBT-friendly firms which are as similar as possible in terms of the control variables. The dependent variables are defined as follows: *Tobin's Q* is the logarithm of the sum of the firm's market value of equity and the book value of liabilities divided by the book value of total assets and *ROA* is calculated as net income divided by the book value of total assets. The control variables are defined as follows: *Size* is measured as the logarithm of the firm's total assets, *Leverage* is the ratio of total debt to book value of equity, *Growth* is the percentage change in sales from year $t-1$ to year t, *Risk* is the firm's beta coefficient, *ESG* is the Thomson Reuters Environmental, Social and Governance responsibility score, *Board size* is the logarithm of the number of members on the firm's board of directors, and *Board independence* is the percentage of independent directors on the board. All variables are winsorised at the 1st and 99th percentiles. The *t*-statistics (in parentheses) are based on robust standard errors which are adjusted for heteroskedasticity and are clustered by firm. ***, ** and * denote statistical significance at the 0.01, 0.05 and 0.10 levels, respectively.

estimates in Table 7 suggest that a one standard deviation increase in *CEI score* would increase the firm's market valuation by approximately 7 percent and return on assets by about 67 basis points.

3.4. Additional tests

We examine the robustness of our results by conducting a number of additional tests.[13] First, even though we have controlled for industry fixed-effects in our main regressions, we acknowledge that our findings may be influenced by cross-industry differences in social progressiveness and attitude

[13]For brevity, we do not tabulate our additional tests. The results of these robustness checks are available from the corresponding author.

towards sexual minorities. These differences are also reflected in the mean CEI scores in our sample which vary considerably across industries, being highest in business equipment and lowest in the energy, oil and gas industry. To address potential industry effects, we estimate industry-adjusted CEI scores for each firm as the residual from a regression of *CEI score* on industry dummies. We then re-estimate alternative versions of Equation (1) using the industry-adjusted CEI scores as the test variable. The regression results (not tabulated) are very similar to the results reported in Table 4. Most importantly, the coefficients for the industry-adjusted CEI score are positive and statistically significant at the 1 percent level in all four regression specifications. This suggests that our empirical findings should not be driven by cross-industry differences in LGBT friendliness.

Second, another potential concern with the CEI score is that it is based largely on annual self-reported surveys. Since 2011, the Human Rights Campaign has published the CEI also for firms that have not responded to the survey, thereby inflicting an inconsistency in the constituent firms. We conduct three additional tests to investigate whether our findings are influenced by the non-voluntary CEI scores. We first re-estimate the regressions using two subsamples; the first subsample excludes all firms with non-voluntary CEI scores and the second subsample comprises only the firms with non-voluntary CEI scores. The estimation results for both subsamples (not tabulated) are remarkably similar and the coefficients for *CEI score* are positive and statistically significant at the 1 percent level in all regressions. We also estimate regressions in which a dummy variable for non-voluntary CEI scores is used as an additional control variable. Once again, the coefficient estimates (not tabulated) for *CEI score* are positive and statistically highly significant throughout the alternative regressions. Our third approach is to use propensity score matching to construct a matched-firm sample in which firms with non-voluntary CEI scores are matched with essentially identical firms that have responded to the surveys. When the regressions are re-estimated using the propensity score matched sample, the coefficients for *CEI score* remain positive and statistically significant (not tabulated). Thus, we conclude that our results are robust to alternative approaches to account for potential non-voluntary disclosure bias in the CEI score.

Third, given that LGBT-friendly corporate policies can be considered as one dimension of corporate social responsibility policies and diversity management, we aim to further ascertain that LGBT friendliness has an incremental effect on firm performance over and above the level of engagement in social responsibility. For this purpose, we replace the ESG score in our regressions with the Thomson Reuters social responsibility score (S score) which takes values between 0 and 100 with higher values indicating higher levels of social responsibility. The regressions results (not tabulated) are consistent with our main analysis; the coefficient estimates for *CEI score* are positive and statistically significant throughout the alternative model specifications. We

also re-estimate the regressions using two subsamples from which either the most socially responsible firms (S score in the highest decile) or the least socially responsible firms (S score in the lowest decile) are excluded. Again, the coefficient estimates (not tabulated) for *CEI score* are positive and statistically significant in both subsamples, suggesting that LGBT friendliness is positively associated with firm performance regardless of the degree of social responsibility.

Fourth, because corporate governance may have confounding effects on the relation between LGBT-friendly policies and firm performance, we estimate regressions in which we employ alternative control variables for corporate governance quality as a further sensitivity test. While in our main regressions we have included *ESG*, *Board size* and *Board independence* to control for governance mechanisms, we now estimate regressions in which the ESG score is replaced with the Thomson Reuters corporate governance score (G score) and board reputation is included as an additional control variable related to board characteristics. The G score takes values between 0 and 100 with higher values indicating stronger corporate governance mechanisms. Following Unsal and Brodmann (2020), we use the change in the number of outside board seats held by the firms' directors as a proxy for board reputation. Consistent with our main regressions reported in Table 4, the coefficient estimates for *CEI score* are positive and remain highly significant in all model specifications after the inclusion of the additional governance quality control variables.

Finally, we acknowledge that firms with employee-supportive working environment and good employee relations are also likely to be more LGBT-friendly. To ensure that LGBT friendliness has an incremental effect on firm performance over overall employee friendliness, we next utilise Fortune's list of the 100 Best Companies to Work for in America to identify firms with the highest employee satisfaction.[14] We then re-estimate our main regressions using a sample from which the most employee-friendly firms included in Fortune's best employer list have been excluded. As an alternative approach, we also estimate regressions in which a dummy variable for the most employee-friendly firms is used as an additional control variable. Irrespective of the approach, the estimated coefficients for *CEI score* (not tabulated) are positive and statistically significant both in the *Tobin's Q* and *ROA* regressions. Overall, these additional tests suggest that the documented positive relationship between LGBT friendliness and firm performance is independent of employee-supportive corporate policies and overall employee satisfaction.

[14]Fortune's list of the 100 Best Companies to Work for in America has been utilised previously to measure employee satisfaction, for example in Filbeck and Preece (2003), Edmans (2011, 2012), Faleye and Trahan (2011) and Chen *et al*. (2016).

4. Conclusions

In this paper, we examine the association between LGBT-friendly corporate policies and firm performance. Given that the relationship is likely to depend on stakeholders' socio-political preferences, we further investigate whether normative social values moderate the linkage between LGBT-friendly policies and firm performance. We empirically test the hypothesis that LGBT-friendly corporate policies improve firm performance using data on 657 publicly traded US firms over the period 2003–2016. In our analysis, we utilise the Corporate Equality Index (CEI) constructed by the Human Rights Campaign to measure firm-level LGBT friendliness, and we use stock market valuation and profitability to measure firm performance.

Consistent with our research hypothesis, we document that firms with more LGBT-friendly corporate policies have higher profitability and higher stock market valuations after controlling for firm attributes such as size, riskiness, growth and overall engagement in social responsibility. The documented positive relationship between LGBT friendliness and firm performance can be considered economically significant; our estimates suggest that a one standard deviation increase in the firm's CEI is associated with an almost 7 percent increase in stock market valuation and about 50 basis point increase in profitability.

Although both the stakeholder theory and the HRM arguments can be used to hypothesise a positive association between LGBT friendliness and firm performance, both mechanisms also suggest that the linkage is likely to depend on stakeholders' preferences and socio-political values. Thus, we investigate how social norms and attitudes potentially moderate the linkage between LGBT-friendly policies and firm performance by exploiting regional differences in social conservatism in our analysis. Our findings indicate that the positive effect of progressive LGBT policies on profitability and market valuation is more pronounced for firms located in more liberal states while being weaker or non-existent for firms located in more conservative states.

Taken as a whole, our empirical findings provide strong evidence to suggest that LGBT-friendly corporate policies enhance firm performance. These findings can be considered to support the view that socially progressive corporate policies and diversity management pay off and create value for the firm.

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