

CORPORATE SEXUAL EQUALITY AND FIRM PERFORMANCE

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Research summary: Previous studies have mixed findings on the relation between corporate socially responsible policies and firm performance. This paper focuses on a specific type of corporate social responsibility—corporate sexual equality, measuring how a firm treats its lesbian, gay, bisexual, and transgender (LGBT) employees, consumers, and investors—and examines whether and how it relates to firm performance. Using a longitudinal dataset of public firms in the U.S. during the period of 2002–2006, we demonstrate that firms with a higher degree of corporate sexual equality have higher stock returns and higher market valuation. We also identify one of the mediating channels, the labor market channel, that brings higher productivity to firms that embrace sexual equality.

Managerial summary: Corporate sexual equality measures how a company treats its lesbian, gay, bisexual, and transgender (LGBT) employees, consumers, and investors. It is an important dimension of corporate social responsibility policies and diversity management. Using a longitudinal dataset of public firms in the U.S. during the period of 2002–2006, we demonstrate that firms with a higher degree of corporate sexual equality have higher stock returns, higher market valuation, and higher labor productivity. Our findings suggest that discriminatory hiring behaviors based on sexual orientation hurt employers and shareholders financially and that implementing corporate sexual equality policies can enhance firms' financial performance, generating competitive advantages in labor markets and mutual benefits between employers and employees. Copyright © 2016 John Wiley & Sons, Ltd.

INTRODUCTION

The growing literature on corporate social responsibility (CSR) has mixed results on the relation between CSR and firm performance. In general, a socially responsible firm is defined by a broad set of ethical, social, and environmental criteria. A firm is considered socially responsible if it

contributes to environmental protection, promotes labor diversity and human rights, dedicates to producing high-quality and safe products, donates to charitable causes, or helps local communities and society overall (Renneboog, Horst, and Zhang, 2008; Statman, 2006).

Friedman (1970) argues that CSR adds unwarranted costs to firms by diverting them away from their main objective of maximizing shareholders' value. Some supportive empirical evidence shows a negative or no association between CSR and firm financial performance (McWilliams and Siegel, 2000; Teoh, Welch, and Wazzan, 1999; Wright and Ferris, 1997). In contrast, Heal (2005) argues that many economic activities produce negative

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externalities due to the difference between private and social costs, and that society values and rewards firms conscious of social responsibilities. CSR may accelerate the development of intangibles related to innovation, human capital, reputation, and culture, smooth public relations and reduce potential conflicts between the firm and the community, which in turn improves firm performance and generates net cost savings by avoiding litigations and reducing risk (Godfrey, Merrill, and Hansen, 2009; Koh, Qian, and Wang, 2013; Surroca, Tribo, and Waddock, 2010; Waddock and Graves, 1997).

We study corporate sexual equality that reflects how a firm treats its lesbian, gay, bisexual, and transgender (LGBT) employees, consumers, and investors. Corporate sexual equality is an important form of a firm's diversity management in that it can signal an open, tolerant workplace milieu and can enhance talent development and workforce diversity (Bell, 2011). Using a longitudinal dataset of public firms in the U.S. during the period of 2002–2006, we provide evidence that firms with a higher degree of corporate sexual equality have higher stock returns and higher market valuation. Moreover, we find that firms with a higher degree of corporate sexual equality have higher employee productivity, suggesting that the positive image and reputation gained from being tolerant to different sexual orientation help firms attract talent and improve productivity, and therefore enhance firm value.

Our study contributes to the literature in three ways. First, instead of examining effects of a myriad of CSR criteria on firm performance in an undifferentiated way, we follow the approach of focusing on one specific component of the multidimensional construct (Brammer and Millington, 2008; Hillman and Keim, 2001) and study a novel CSR criterion—corporate sexual equality. Empirical studies on the effectiveness of corporate sexual equality policies are scant (Li and Nagar, 2013). We contribute to the CSR literature by providing empirical evidence on how corporate sexual equality policies are related to firm valuation. Second, existing studies on corporate sexual equality lack a specific mechanism as to how corporate sexual equality policies relate to firm value (Li and Nagar, 2013). Our study contributes to the literature by going beyond *ad-hoc* explanations of regression results and identifying one of the specific channels—the labor-market channel—through which corporate sexual equality is associated with

firm performance. Third, we deal with three potential identification issues, the endogeneity issue, the sample selection issue, and the possible correlations between the error terms across equations, by using the instrumental variable approach, the Heckman's two-step consistent estimator, and the seemingly unrelated regressions, respectively.

THEORETICAL FRAMEWORK

Background

The operations of firms are embedded in a broad set of social and political institutions. On the one hand, underlying social norms and existing regulations affect firm behaviors. On the other hand, how responsive firms are towards the changing social and legal environments affects their market competitiveness. There is an ongoing debate on the rights and legal protections of LGBT people in the United States (Tilcsik, 2011). Although there is no federal law prohibiting discrimination based on sexual orientation, the overall social attitude has become more accepting towards LGBTs. For instance, Americans opposing gay marriage have fallen by 19 points (from 65%) since 1996, and nowadays a majority of Americans (58%) think that homosexuality should be accepted (Pew Research Center, 2011). Moreover, 21 states and Washington, D.C. have passed employment laws and policies prohibiting discrimination based on sexual orientation, and 31 states and Washington, D.C. have a law addressing hate or bias crimes based on sexual orientation.¹ Even in the Southern and the Midwestern states without such laws, many major cities such as Atlanta, Austin, and Dallas, have passed some forms of anti-discrimination regulations (Tilcsik, 2011).

American corporations have not been left behind in this social trend. So far 87 percent of the Fortune 500 firms have formally adopted human resource policies against discrimination based on sexual orientation. This progress would be impossible without the push by shareholder activists and institutional investors. For instance, Apache Corporation, an energy firm, received a proposal for its

¹Data sources: Corporate Equality Index 2012, p. 21 and A Guide to State-Level Advocacy Following Enactment of the Hate Crimes Prevention Act, p. 11, available at http://asp.hrc.org/documents/CorporateEqualityIndex_2012.pdf and <http://www.hrc.org/resources>, respectively.

2008 annual shareholder meeting from several New York City pension fund shareholders. The proposal from the funds asked the firm to implement equal employment opportunity policies prohibiting discrimination based on sexual orientation. To justify their proposal in economic terms, the funds argued that with the LGBT non-discrimination protection in place, shareholders would benefit from the firm's improved recruitment and retention of employees, increased employee morale and productivity, lowered litigation costs, and strengthened corporate reputation (Roy, 2009). Academic studies also find that firms with good employee relations can attract and retain good employees, and employee loyalty helps increase productivity and innovation, thus enhancing profitability (Backhaus, Stone, and Heiner, 2002; Waddock and Graves, 1997). Consistent with this view, Edmans (2011) finds that employee-friendly firms earn significantly higher stock returns than their peers from 1984 to 2009.

Becker's model of discrimination shows that employers who discriminate bear financial costs for those tastes (Becker, 1957). However, discrimination would still persist as long as it enjoys the status of being a social norm and disobedience of it would mean a loss of reputation (Akerlof, 1980) and ostracism by business partners (Granovetter, 1985). In the case of corporate sexual equality, since the overall social trend has moved to the direction more tolerant and hospitable towards LGBT people during recent years, the potential reputation loss or ostracism by local business community due to treating LGBT people fairly should be less of a concern to business than in the past. Rather, given the changing social norm, corporations more responsive to this change would benefit financially by making themselves a more welcoming place to LGBT people and creating a more positive image to the public. For example, Li and Nagar (2013) find that U.S. firms initiating same-sex domestic partnership benefit policies earn excess stock returns over the 1995–2008 period.

In summary, how a firm treats its LGBT employees, consumers, and investors will affect the firm's financial performance. As many studies point out, being socially responsible increases a firm's intangible resources, such as reputation, human capital, innovation, and stakeholder relations (Barnett, 2007; Barnett and Salomon, 2012; Jones, 1995; Surroca *et al.*, 2010), all of which help improve a firm's financial performance. In other words, if corporate sexual equality policies are considered

valuable to employees, consumers, and the broader public in general, they can add value to firms that embrace them. Therefore, we derive our main hypothesis as follows:

Hypothesis 1 (H1): Firms with a higher degree of corporate sexual equality will have a higher market value than firms with a lower degree of corporate sexual equality.

One mechanism: the labor market process

Corporate sexual equality practices can increase labor productivity for at least three reasons. First, corporate sexual equality policies help recruit productive employees. Just like cities more open and tolerant towards different sexual orientations tend to attract more knowledgeable workers who in return boost the local economy (Chen, 2011; Florida, 2005; Fu, 2007), a supportive organization culture helps attract and recruit high-quality job applicants (Backhaus *et al.*, 2002; Catanzaro, Moore, and Marshall, 2010). Non-discrimination practices in terms of sexuality can create a more open, diverse, tolerant and supportive environment for employees, and therefore can help recruit talented and productive employees. During recent years, many shareholder activists and institutional investors are pushing for corporate sexual equality based on this argument (Roy, 2009). Case studies also show that firms without well thought-out (LGBT) diversity policies are likely to miss out on recruiting top talent and run the risk of a backlash among job applicants (Broughton and Strebler, 2008). On the other hand, firms with diversity policies may find it easier to recruit top quality employees, including LGBT ones (Waddock and Graves, 1997).

Paradoxically, research has documented widespread discrimination against LGBTs on the labor market (Badgett, 2006). Significant barriers in the hiring process for LGBT people still exist and employers are more likely to disqualify openly gay applicants than equally qualified heterosexual applicants. For example, Tilcsik (2011) finds that gay job applicants are approximately 40 percent less likely to be asked for job interviews than their heterosexual counterparts even after controlling for job, employer, and area characteristics. To adapt to the stigmatized role in the labor market, gay people may disproportionately sort into occupations with a high degree of task independence or social perceptiveness (Tilcsik, Anteby, and Knight,

2015). This suggests that employers who do not discriminate against LGBT people can not only select employees from a larger pool of candidates, but also more easily attract talented LGBT job seekers. Employers who do discriminate shoulder financial costs for not tapping into the human capital of LGBT job applicants.

Second, inclusive labor practices tend to make employees more productive by nurturing a more open, friendly workplace and by strengthening the morale. Corporate sexual equality policies can make LGBT employees feel valued and comfortable at work and therefore can increase their productivity. Specific corporate sexual equality policies targeting specific requests from employees and unions can help maintain good employee relation and boost morale (Mallory and Sears, 2011). Corporate social responsible labor policies can also increase employee engagement and mitigate adverse behavior at the workplace (Flammer and Luo, 2017). In addition, research on creativity and innovation in organizations demonstrates that creative ideas will increase when diversity is valued and people with dissimilar frames of reference can exchange ideas (Angle, 1989; Kanter, 1983). Therefore, firms more open to LGBT people can benefit from higher creativity and productivity created by a more open and diverse workforce.

Third, socially responsible employee policies can strengthen employee loyalty and help retain talents and reduce turnover, thus improving labor productivity. Vitaliano (2009) finds that among a sample of 84 *Fortune* magazine's "100 Best Employers," those who adopt worker-friendly CSR policies can reduce the annual quit rate by three to three and a half percent. This implies that firms without such policies have to raise the mean wage by nine percent per year to reduce turnover by the same amount. Case studies also confirm that corporate sexual equality policies help retain the best talent and improve labor productivity (Mallory and Sears, 2011). Badgett *et al.* (2013) review 36 studies and conclude that corporate sexual equality policies can increase job commitment, job satisfaction, and worker productivity.

In summary, firms with a higher degree of corporate sexual equality can benefit from the availability and stability of a wider talent pool and higher creativity and productivity generated by a more open and diverse workplace. If a higher degree of corporate sexual equality increases employee productivity, it will lead to higher future

cash flows. According to the classic finance theory (Ross, Westerfield, and Jaffe, 2010), since a firm's market value should equal the present value of all its future cash flows, a higher degree of corporate sexual equality would lead to higher firm value. Hence, we derive our second hypothesis as follows:

Hypothesis 2 (H2): Firms with a higher degree of corporate sexual equality will have higher labor productivity than firms with a lower degree of corporate sexual equality.

DATA AND VARIABLES

Data sources and sample

Financial variables and stock returns are obtained from the Center for Research in Security Prices (CRSP) and Compustat, and corporate sexual equality measures are obtained from the Human Rights Campaign (HRC). In 2002, the HRC, the largest national LGBT civil rights organization in the U.S., began conducting an annual survey to rate large U.S. businesses on how they treat their LGBT employees, consumers, and investors, and initiated the publication of the annual report *Corporate Equality Index* (CEI). Our measure of corporate sexual equality is CEI collected manually from the annual report from 2002 to 2006.² The 2002 sample that the HRC surveyed includes *Fortune* magazine's 500 largest publicly traded firms in 2002, and 200 of the largest privately owned firms from the 2001 *Forbes* magazine's *Private 500*, and other firms that the HRC had sufficient information to rate. The sample expands over time to include the *Fortune* 1000, the *Standard & Poor's* 500, *Forbes'* list of the 200 largest privately held firms, and the *American Lawyer* 100 in 2006. There are a total of 1908 firm-year observations with CEI from 2002 to 2006. For our research purposes, we restrict our sample to publicly traded firms in both CRSP and Compustat. We match the CEI data with Compustat data by firm name, through a firm-name-matching algorithm developed by Kerr and Fu (2008). This combined data set is then merged with CRSP data through the CRSP and Compustat merged file obtained from Wharton Research Data Services. To ensure accuracy, we also check manually both matched

²For the details of each CEI report, please refer to <http://www.hrc.org/resources/entry/corporate-equality-index-archives>.

and unmatched firms. The final dataset contains 1283 firm-year observations from 2002 to 2006.

Dependent variables

The dependent variable of the model testing Hypothesis 1 is firm value. Following the literature (Gompers, Ishii, and Metrick, 2003; Hong and Kacperczyk, 2009), we use stock returns (R) and Tobin's Q to measure firm value, defined as the monthly stock returns in percentage point and the ratio of the market value of assets to the book value of assets, respectively.

The dependent variable of the model testing Hypothesis 2 is employee productivity. Ideally, total output per employee is a precise measure of worker productivity. Due to data availability, we follow Chen, Firth, and Xu (2009) and use firm income per employee as an approximation, defined as income before extraordinary items divided by the number of employees in a firm.

Measuring corporate sexual equality

The HRC's annual report *Corporate Equality Index* rates a firm on a scale between 0 and 100 with 100 being the highest equality. The rating indicators include whether a firm includes "sexual orientation" and "gender identity" in its equal employment opportunity policy, whether a firm provides diversity training on sexual orientation and gender identity, and whether the firm has supportive gender transition guidelines, domestic partner health insurance, and at least one transgender wellness benefit. For example, according to the 2006 criteria, a policy such as "sexual orientation diversity training offered" or "parity in at least one transgender wellness benefit" takes five points; a policy "company-provided domestic partner health insurance" or "non-discrimination policy includes sexual orientation" takes 15 points. Scores for these breakdown sub-indicators are publically available since 2005. The number of sub-indicators changes from seven in 2005 to 11 in 2006. Since this change is common to all firms, it can be controlled for by year fixed effects in our models.

Firms achieving a full score of 100 are selected as "the best places to work" in the annual *The State of Workplace*, a report that collects information on laws and policies concerning sexual orientation and gender identity in the workplace across the U.S. and aims to promote workplace diversity.

Consumer-orientated businesses are included in the annual *Buying for Equality*, a guide advising consumers to buy products and services from firms with higher CEI scores.

Although the CEI measure incorporates a comprehensive set of sexual equality policies, it is not perfect. It is constructed and published by the HRC and may reflect certain perceptions of this organization. Besides, it does not fully capture the extent to which sexual equality policies are actually enforced on the ground. Furthermore, certain types of firms may be more likely to be surveyed by the HRC than others, which may create a sample selection bias. We are unable to address the first two issues but we deal with the third in the empirical tests.

Control variables

Control variables are selected based on the existing literature (Carhart, 1997; Chen *et al.*, 2009; Gompers *et al.*, 2003; Hong and Kacperczyk, 2009; McWilliams and Siegel, 2000; Morck and Yang, 2001; Waddock and Graves, 1997) and are defined in Table 1.

In addition, we include two more control variables to avoid potential omitted variable bias. The first one is *Lax-Phillips score* from Lax and Phillips (2009). We include this variable to take into account the regional differences in corporate sexual equality practices because social acceptance of LGBT people in the U.S. varies significantly across regions (Lax and Phillips, 2009; Tilcsik, 2011). We also use state fixed effects to control for the regional differences in attitudes toward LGBT people and the results are very similar. The other variable we include is *MSCI net score* calculated as the total score of CSR strength minus the total score of CSR concerns, where CSR indices are obtained from MSCI Inc. This variable captures the net effect of all other types of CSR metrics on firm value. As a robustness check, we also estimate all models replacing *MSCI net score* by the commonly used three CSR strength indices: corporate governance strength, community relations strength, and environmental protection strength, and the results are very similar.

Since both the *Lax-Phillips score* and *MSCI net score* are available only for a subset of firms, we present two sets of estimation results, with and without these additional controls. To alleviate the potential influence of outliers, continuous variables are winsorized at the 1 and 99 percent

Table 1. Variable definitions

Variable name	Definition
<i>R</i>	Monthly stock returns.
<i>Q</i>	The market value of total assets divided by the book value of total assets.
<i>CEI</i>	Corporate equality index provided by the HRC.
<i>Income/employee</i>	Income before extraordinary items divided by the number of employees in a firm.
<i>ME</i>	The market value of equity. It controls for the effect of firm size on stock returns.
<i>Book-to-market ratio</i>	The ratio of book value of equity to the market value of equity. This variable controls for firm growth: a smaller value of <i>Book-to-market ratio</i> indicates higher firm growth opportunities.
<i>Momentum</i>	The previous 12 months cumulative returns. It controls for the effect of past stock performance on the current stock returns.
<i>Beta</i>	The market model beta estimated using the prior 36 monthly value-weighted CRSP index returns. This variable controls for the effect of market risk on stock returns.
<i>Leverage</i>	The ratio of total debt divided by the market value of total assets. It controls for the effect of financial leverage on firm valuation or productivity.
<i>Size</i>	The book value of total assets. It controls for the size effect on firm valuation or the effect of scale economies on firm productivity.
<i>Age</i>	The number of years that a firm is available in the CRSP data. It controls for the firm life cycle effect.
<i>S&P 500</i>	A dummy set to one for firms included in S&P 500 index and zero elsewhere. It controls for the effect of <i>Standard & Poor's</i> 500 membership on firm valuation (Morck and Yang, 2001).
<i>R&D/Sale</i>	R&D expenses divided by total sales. It controls for the effect of R&D intensity on firm performance (McWilliams and Siegel, 2000; Waddock and Graves, 1997).
<i>Lax-Phillips score</i>	State-level gay rights score by Lax and Phillips (2009). It is based on data from sources such as national polls and is a comprehensive measure of state-level support of policies regarding gay rights. A higher value of the <i>Lax-Phillips score</i> indicates stronger support for gay rights. This variable controls for regional differences in corporate sexual equality practices.
<i>MSCI net score</i>	The total score of CSR strength minus the total score of CSR concerns using CSR indices obtained from MSCI Inc., a leading provider of environmental, social, and governance ratings. It captures the net effect of all types of CSR metrics provided by MSCI Inc., and controls for the effect of other aspects of CSR on firm value.

levels. Table 2 presents summary statistics of the variables. Panel A reports descriptive statistics of CEI by year. In general, CEI scores increase over years and vary substantially across firms in any given year. Panel B reports descriptive statistics of firm characteristic variables. Panel C presents the correlation matrix of key variables.

EMPIRICAL TESTS

Corporate sexual equality and firm value

We follow the standard procedure in finance literature (Hong and Kacperczyk, 2009; Hou and Robinson, 2006) to examine corporate sexual equality and stock returns. The baseline model is specified at the firm-month level as follows:

$$R_{im} = \alpha + \beta_1 CEI_{it} + \beta_2 \ln(ME)_{it} + \beta_3 \ln(Book-to-market\ ratio)_{it}$$

$$+ \beta_4 Momentum_{im} + \beta_5 Beta_{im} + \beta_6 Leverage_{it} + \beta_7 (Lax - Phillips\ score)_{it} + \beta_8 (MSCI\ net\ score)_{it} + \epsilon_{im}, \quad (1)$$

where *i* stands for firm, *m* for month, and *t* for year; “ln” represents the natural logarithm of a variable. Each of these six variables has the same value for a firm across months in the same year: *CEI*, *ME*, *Book-to-market ratio*, *Leverage*, *Lax-Phillips score*, and *MSCI net score*. In addition, we include industry fixed effects to control for industry-specific attributes, where industry is defined using the Fama-French 48-industry definitions (Fama and French, 1997).

There is a standard procedure in finance literature on matching yearly variables with monthly variables (see Carhart, 1997; Fama and French, 1992, 1993; Hou and Robinson, 2006). In our case, some right-hand-side (RHS) control variables, such as *CEI*, are yearly, while the left-hand-side (LHS)

Table 2. Summary statistics

Panel A: Descriptive statistics of corporate equality index						
	N	Mean	Median	Min	Max	Std
2002	214	60.61	57.00	0.00	100.00	23.71
2003	253	68.92	71.00	14.00	100.00	21.77
2004	262	71.96	79.00	0.00	100.00	22.85
2005	276	76.30	86.00	14.00	100.00	21.53
2006	278	75.94	80.00	0.00	100.00	25.33
Total	1283	71.26	75.00	0.00	100.00	23.69

Panel B: Descriptive statistics of key variables					
	Mean	Median	Minimum	Maximum	Std Dev
Q ratio	1.86	1.48	0.87	6.12	1.05
Size (in 10 billion)	8.40	1.63	0.05	126.40	20.49
Age	34.12	31.00	1.00	81.00	24.33
Employee (in 1000)	71.44	37.70	0.15	1900.00	128.22
ln(Book-to-market ratio)	-0.98	-0.92	-3.45	0.63	0.72
Leverage	0.42	0.40	0.00	0.96	0.26
S&P 500	0.78	1.00	0.00	1.00	0.42
ln(Income/employee)	3.11	3.22	-0.08	6.18	1.23
R&D/Sales	0.03	0.00	0.00	0.22	0.05
Lax-Phillips score	59.50	60.00	43.00	68.00	6.03
MSCI net score	0.44	0.00	-10.00	14.00	3.41

Panel C: Correlation matrix of key variables										
	CEI	1	2	3	4	5	6	7	8	9
1. ln(Q)	0.002	1.000								
2. ln(Income/employee)	0.236	0.056	1.000							
3. Size	0.207	-0.298	0.320	1.000						
4. ln(Age)	-0.047	0.003	0.039	-0.104	1.000					
5. S&P 500	0.123	0.042	0.182	-0.002	0.469	1.000				
6. ln(Book-to-market ratio)	-0.009	-0.829	-0.086	0.159	-0.047	-0.110	1.000			
7. Leverage	0.125	-0.829	0.130	0.493	-0.048	0.024	0.548	1.000		
8. R&D/sales	0.120	0.461	0.199	-0.140	-0.036	0.019	-0.291	-0.423	1.000	
9. Lax-Phillips score	0.254	0.016	0.143	0.130	0.018	0.071	-0.064	0.072	0.189	1.000
10. MSCI net score	0.350	0.222	0.105	0.062	-0.040	0.076	-0.210	-0.095	0.240	0.224

variable, monthly stock returns, is monthly. The RHS yearly variables can be matched with a particular period of monthly LHS variable depending on the specification. For robustness checks, we specify three types of matching: same-year matching, lagged-year matching, and cross-year matching. For the same-year matching, the RHS yearly variables in year t are matched with the monthly LHS variable from January to December of year t . For the lagged-year matching, the RHS yearly variables in year t are matched with monthly LHS variable from January of year $t + 1$ to December of year $t + 1$. This matching specification assumes that investors react based on the previous year CEI score. For the cross-year matching, the RHS yearly variables in year t are matched with the monthly

LHS variable from October of year t to September of year $t + 1$. This matching method assumes that investors react based on the new CEI score released by the HRC because October is the month following the release of new CEI scores. The lagged-year and the cross-year matching methods can partially address the concern of reverse causality

Following Fama and MacBeth (1973), we run cross-sectional regressions for each month and obtain time-series average values of the monthly regression coefficients with time-series t -statistics calculated using Newey-West standard errors. This method effectively captures correlations across different time periods.

Table 3 reports the regression results of Model (1). Columns (1)–(3) use the same-year matching,

Table 3. Corporate sexual equality and stock returns

	(1) Same-year	(2) Cross-year	(3) Lagged-year	(4) Same-year	(5) Cross-year	(6) Lagged-year
CEI	0.007 (0.00)	0.005 (0.01)	0.006 (0.03)	0.003 (0.00)	0.005 (0.00)	0.007 (0.02)
ME	-0.182 (0.00)	-0.232 (0.02)	-0.201 (0.04)	-0.161 (0.03)	-0.114 (0.08)	-0.144 (0.10)
ln(Book-to-market ratio)	0.224 (0.00)	0.209 (0.00)	0.269 (0.00)	0.230 (0.00)	0.324 (0.00)	0.328 (0.00)
Momentum	-0.736 (0.04)	-0.960 (0.18)	-0.716 (0.27)	-0.771 (0.07)	-1.066 (0.15)	-0.833 (0.18)
Beta	0.157 (0.32)	0.508 (0.10)	0.333 (0.15)	0.134 (0.41)	0.511 (0.06)	0.405 (0.07)
Leverage	-0.079 (0.91)	0.108 (0.85)	0.099 (0.88)	0.186 (0.37)	0.202 (0.39)	0.259 (0.28)
Lax-Phillips score				0.010 (0.04)	0.004 (0.43)	-0.002 (0.83)
MSCI net score				0.003 (0.87)	-0.005 (0.83)	-0.031 (0.00)
Number of months	60	51	48	60	51	48
Adj. R ²	0.18	0.17	0.16	0.19	0.19	0.18

This table summarizes the results from Fama-MacBeth cross-sectional regressions. The dependent variable is monthly stock returns in percentage point. Columns (1) and (4) match CEI in year *t* with monthly returns from January to December of year *t*. Columns (2) and (5) match CEI in year *t* with monthly returns from October of year *t* to September of year *t* + 1. Columns (3) and (6) match CEI in year *t* with monthly returns from January to December of year *t* + 1. Industry fixed effects are included. Time-series average values of the monthly regression coefficients are reported. *p*-Values are based on time-series *t*-statistics calculated using Newey-West standard errors, and are reported in parentheses.

cross-year matching, and lagged-year matching specifications respectively. As expected, Columns (1)–(3) show that the coefficients of CEI are positive and statistically significant—at least at the five percent level. Conditioning on other firm characteristics, an increase in CEI score by 10 points is associated with higher stock returns between 0.65 and 0.85 percentage points per year. To address the omitted variable bias issue, we also add the *Lax-Phillips score* to control for regional differences in gay rights and the *MSCI net score* to control for other CSR aspects and re-run the models in Columns (1)–(3). The results are presented in Columns (4)–(6). The coefficients of CEI are still statistically significant with slightly smaller magnitudes since CEI is positively correlated with *MSCI net score* variable (correlation coefficient is 0.35).

To test whether higher CEI scores are associated with higher Q ratios, following Gompers *et al.* (2003) and Hong and Kacperczyk (2009), we specify the following model at the firm-year level:

$$\ln(Q_{it}) = \alpha_t + \beta_1 CEI_{it} + \beta_2 Size_{it} + \beta_3 \ln(Age)_{it} + \beta_4 SP500_{it}$$

$$+ \beta_5 \ln(Book-to-market\ ratio)_{it} + \beta_6 Leverage_{it} + \beta_7 (R\&D/Sales)_{it} + \beta_8 (Lax-Phillips\ score)_{it} + \beta_9 (MSCI\ net\ score)_{it} + \epsilon_{it}, \quad (2)$$

where the dependent variable is the natural logarithm of the Q ratio. Industry and year fixed effects are also included and standard errors are clustered at the firm level.

Table 4 reports the results from estimating Model (2). Consistent with Hypothesis 1 that firms with higher CEI scores will also have higher market value, the coefficient of *CEI* in Column (1) is significantly positive at the one percent level. On average, after controlling for firm characteristics, industry and year fixed effects, a 10-point increase in CEI score is associated with a one percent increase in the Q ratio. Column (2) includes *Lax-Phillips score* and *MSCI net score* in the *RHS* controls. The coefficient of *CEI* is very close to that in Column (1) and is still significant at the one percent level. The coefficient of *Lax-Phillips score* is not statistically significant, indicating that regional differences in

social acceptance towards LGBT people do not have a significant impact on firm value.

To address the concern of reverse causality, we replace contemporaneous CEI by lagged CEI and report the estimation results in Columns (3) and (4). The coefficients of lagged CEI are significantly positive at the one percent level and the magnitudes are almost identical. Another concern is that local social attitude toward LGBT people may moderate the relation between corporate sexual equality policies and firms' financial performance. For example, a firm located in less tolerant region may benefit less from its sexual equality policies due to possible backlash from some of its local stakeholders. To test this, we add the interaction of *CEI* and *Lax-Phillips score* to Columns (2) and (4) and re-estimate the two models. The coefficients of *CEI* are very similar, but the coefficients of the interaction term are insignificant and close to zero indicating that regional variations in social attitude do not play a significant role in moderating the relation between corporate sexual equality policies and firm performance. In untabulated tables, we also include the interaction of *CEI* with *Lax-Phillips score* in other models but find that the coefficients are insignificant as well.

Putting together, the results in Tables 3 and 4 support Hypothesis 1 that firms with a higher degree of corporate sexual equality also have a higher market value than firms with a lower degree of corporate sexual equality.

One mechanism: the labor market process

To test Hypothesis 2, we follow the literature (Chen *et al.*, 2009) and use firm income per employee as a proxy for employee productivity and specify the following model at the firm-year level:

$$\begin{aligned} \ln(\text{Income per employee})_{it} = & \alpha_t + \beta_1 \text{CEI}_{it} \\ & + \beta_2 \text{Size}_{it} + \beta_3 \ln(\text{Age})_{it} + \beta_4 \text{SP500}_{it} \\ & + \beta_5 \ln(\text{Book-to-market ratio})_{it} \\ & + \beta_6 (\text{Lax-Phillips score})_{it} \\ & + \beta_7 (\text{MSCI net score})_{it} + \varepsilon_{it}. \end{aligned} \quad (3)$$

Year and industry fixed effects are included and standard errors are clustered at the firm level.

The results are presented in Table 5. Column (1) reports the baseline results without *Lax-Phillips score* and *MSCI net score*. Consistent with H2, the coefficient of CEI is significantly positive at the

one percent level, indicating that after controlling for firm characteristics, year and industry specific effects, a 10-point increase in CEI score is associated with approximately a four percent increase in employee productivity. This result is robust to the inclusion of *Lax-Phillips score* and *MSCI net score* in Column (2). Columns (3) and (4) replace contemporaneous CEI with lagged CEI and the coefficients of lagged CEI are still significantly positive at the one percent level.

The results in Table 5 may be driven by two types of industry heterogeneities. First, the awareness of CSR has an impact on consumer buying behavior (Mohr, Webb, and Harris, 2001) and socially responsible consumer behavior may boost sales or profitability of consumer-product firms (Lev, Petrovits, and Radhakrishnan, 2010), confounding our estimates of CEI on employee productivity. Second, workers with unobserved high ability may disproportionately sort into certain industries, particularly service industries, which can bias our estimates of CEI coefficient. For example, the 1990 U.S. census data reveal that partnered gays and lesbians receive higher education, compared to other individuals (Black *et al.*, 2000: 151). Although industry fixed effects can control for these two issues, we also provide additional tests to address these two concerns.

First, we follow Lev *et al.* (2010) and classify firms into consumer-product firms and business-product firms. Consumer-product firms include firms in these industries: food, soda, beer, smoke, toys, fun, books, consumer goods, apparel, automobiles and trucks, utilities, telecommunications, personal services, retail, meals and restaurants, and insurance. We estimate Model (3) for consumer-product firms and business-product firms separately and report the results in Columns (1)–(2) of Table 6. The coefficients of CEI are significantly positive for both consumer-product firms and business-product firms and the magnitudes are not statistically different. This pattern holds when contemporaneous CEI is replaced by lagged CEI as shown in Columns (3) and (4), suggesting that the labor market process is not a product market process in disguise.

Second, to address the concern of worker sorting, we estimate Model (3) for service industries and manufacturing industries separately. Service industries include whole sales, retail, healthcare and drug, and so forth. The results are presented in Columns (5)–(8) of Table 6, showing the similar pattern as the sample-split by consumer and

Table 4. Corporate sexual equality and Q ratio

	(1)	(2)	(3)	(4)
CEI	0.001 (0.00)	0.001 (0.00)		
Lag(CEI)			0.001 (0.00)	0.001 (0.00)
Size	0.001 (0.00)	0.002 (0.00)	0.001 (0.00)	0.002 (0.00)
ln(Age)	-0.018 (-0.01)	-0.022 (0.00)	-0.023 (0.00)	-0.029 (0.00)
S&P 500	0.004 (0.75)	-0.003 (0.82)	0.008 (0.60)	0.001 (0.98)
ln(Book-to-market ratio)	-0.334 (0.00)	-0.336 (0.00)	-0.350 (0.00)	-0.356 (0.00)
Leverage	-1.039 (0.00)	-1.028 (0.00)	-1.079 (0.00)	-1.054 (0.00)
R&D/sales	0.996 (0.00)	0.979 (0.00)	1.159 (0.00)	1.016 (0.00)
Lax-Phillips score		-0.001 (0.20)		-0.001 (0.11)
MSCI net score		0.005 (0.00)		0.005 (0.00)
Sample size	1283	1171	948	872
Adj. R ²	0.92	0.92	0.92	0.93

The dependent variable is ln(Q). Industry and year fixed effects are included in all regressions. *p*-Values are in parentheses.

Table 5. The labor-market process: corporate sexual equality and employee productivity

	(1)	(2)	(3)	(4)
CEI	0.004 (0.00)	0.004 (0.00)		
Lag(CEI)			0.005 (0.00)	0.005 (0.00)
Size	0.008 (0.00)	0.009 (0.00)	0.008 (0.00)	0.008 (0.00)
ln(Age)	-0.072 (0.06)	-0.112 (0.01)	-0.122 (0.00)	-0.166 (0.00)
S&P 500	0.344 (0.00)	0.379 (0.00)	0.411 (0.00)	0.431 (0.00)
ln(Book-to-market ratio)	-0.442 (0.00)	-0.439 (0.00)	-0.458 (0.00)	-0.452 (0.00)
Lax-Phillips score		-0.005 (0.31)		-0.005 (0.32)
MSCI net score		0.033 (0.00)		0.039 (0.00)
Sample size	1179	1080	885	811
Adj. R ²	0.65	0.67	0.66	0.67

The dependent variable is ln(Income/employee), the natural logarithm of income before extraordinary items divided by the number of employees. Industry and year fixed effects are included in all regressions. *p*-Values are in parentheses.

business product firms. The coefficients of CEI and lagged CEI are always significantly positive in both groups. We also estimate Models (1) and (2) for consumer and business product firms and for service and manufacturing industry firms

separately and the results are robust. This shows that our results are not driven by worker sorting either. Overall, the results in Tables 5 and 6 support H2 that a higher degree of corporate sexual equality leads to higher employee productivity.

Table 6. The labor market process: robustness checks

	(1) Consumer	(2) Business	(3) Consumer	(4) Business	(5) Service	(6) Manufacturing	(7) Service	(8) Manufacturing
CEI	0.004 (0.01)	0.003 (0.05)			0.004 (0.06)	0.006 (0.02)		
Lag(CEI)			0.006 (0.00)	0.004 (0.02)			0.010 (0.01)	0.006 (0.03)
Size	0.021 (0.00)	0.007 (0.00)	0.019 (0.00)	0.007 (0.00)	0.013 (0.00)	0.034 (0.00)	0.011 (0.00)	0.036 (0.00)
ln(Age)	-0.029 (0.55)	-0.141 (0.02)	-0.053 (0.40)	-0.239 (0.00)	-0.061 (0.34)	-0.117 (0.15)	-0.089 (0.56)	-0.141 (0.18)
S&P 500	0.325 (0.00)	0.366 (0.00)	0.424 (0.00)	0.318 (0.02)	0.660 (0.00)	0.399 (0.02)	0.764 (0.00)	0.493 (0.02)
ln(Book-to-market ratio)	-0.309 (0.00)	-0.646 (0.00)	-0.318 (0.00)	-0.663 (0.00)	-0.308 (0.00)	-0.229 (0.00)	-0.215 (0.10)	-0.248 (0.01)
Lax-Phillips score	-0.010 (0.07)	-0.002 (0.73)	-0.012 (0.09)	-0.001 (0.93)	0.015 (0.03)	-0.011 (0.22)	0.013 (0.33)	-0.014 (0.216)
MSCI net score	0.024 (0.04)	0.047 (0.00)	0.027 (0.42)	0.050 (0.00)	0.004 (0.58)	-0.003 (0.82)	-0.013 (0.67)	-0.000 (1.00)
Sample size	517	646	385	487	609	471	451	360
Adj. R ²	0.70	0.60	0.69	0.63	0.41	0.16	0.42	0.16

This table presents the results of regressing ln(Income/employee) on the CEI and other control variables by consumer-product and business-product firms and by service and manufacturing industries respectively. Industry and year fixed effects are included in all regressions. *p*-Values are in parentheses.

The mediation process

Our underlying conceptual framework suggests that the relation between corporate sexual equality and firm performance is partially mediated by a labor market process. Therefore, we follow the Baron-Kenny steps and estimate a statistical mediation model (Baron and Kenny, 1986; Preacher, Rucker, and Hayes, 2007). The results for each step are presented in Table 7. Column (1) replicates the result in Column (2) of Table 4, which establishes the association between corporate sexual equality and firm value. Column (2) replicates the result in Column (2) of Table 5, which estimates a positive and statistically significant effect of corporate sexual equality on labor productivity conditional on other firm attributes and demonstrates that corporate sexual equality correlates with the mediating variable (labor productivity). Column (3) shows how corporate sexual equality and the mediator jointly affect firm value. The coefficient of labor productivity is positive and significantly different from zero, suggesting an indirect effect of corporate sexual equality on firm value through the labor market. Furthermore, the coefficient of CEI is also positive, significantly different from zero, indicating a significant and direct effect of corporate sexual equality on firm value in addition to the indirect effect.

If four decimal digits are used, the direct effect is 0.0009 and the indirect effect is 0.0001, indicating that the indirect effect amounts to about 10 percent of the total effect. Given this result, we are aware that there should also exist other mediating channels connecting corporate sexual equality and firm value. One of such plausible channels, for example, could be that consumers who value social responsibilities are motivated to buy socially responsible products and services (Heal, 2005), or are willing to pay a price premium for them (Castaldo *et al.*, 2009). Due to data constraints, we leave this issue for future research. Overall, Table 7 depicts a partial mediation model and confirms that corporate sexual equality has a direct effect on firm value as well as an indirect effect on firm value through the labor market channel.

FURTHER IDENTIFICATION ISSUES

Meta-analysis of the effect of CSR on firm performance finds a positive effect but provides little causal identification evidence (Orlitzky, 2008). Therefore, we address three potential econometric issues: endogeneity, the sample selection bias, and correlations of error terms across equations. We summarize the main results here and present

Table 7. Statistical mediation model

	Dependent variable		
	ln(Q)	ln(Income/ employee)	ln(Q)
Productivity			0.033 (0.00)
CEI	0.001 (0.00)	0.004 (0.00)	0.001 (0.00)
Size	0.002 (0.00)	0.009 (0.00)	0.001 (0.01)
ln(Age)	-0.022 (0.00)	-0.112 (0.00)	-0.028 (0.01)
S&P 500	-0.003 (0.81)	0.379 (0.00)	-0.001 (0.97)
ln(Book-to-market ratio)	-0.336 (0.00)	-0.439 (0.00)	-0.331 (0.00)
Leverage	-1.028 (0.00)		-1.030 (0.00)
R&D/sales	0.979 (0.00)		0.994 (0.00)
Lax-Phillips score	-0.001 (0.20)	-0.005 (0.31)	-0.000 (0.71)
MSCI net score	0.005 (0.00)	0.033 (0.00)	0.004 (0.08)
Sample size	1,171	1,080	1,080
Adj. R ²	0.92	0.67	0.93

Industry and year fixed effects are included in all regressions. *p*-Values are in parentheses.

the detailed estimation procedures and results in Appendix S1.

The first concern is the endogeneity of corporate sexual equality policies. For example, Nelling and Webb (2009) find that firms with stronger stock performance invest more on CSR policies relating to employee relations. Following Cai, Fang, and Xu (2011), we use the median CEI score of firms in the same state and same year as the instrumental variable. We estimate the two-stage least squares regressions using generalized method of moments (GMM) (Wooldridge, 2010). The Kleibergen-Paap rank test statistics reject the weak instrument null hypothesis at the one percent level according to the critical values provided by Stock and Yogo (2010). The results in Table A2, Appendix S1 show that coefficients of CEI are statistically significant, positive, and with similar magnitude as the OLS results in Table 4.

The second concern is that our OLS estimates may be biased and inefficient due to possible sample selection issue (Heckman, 1979). We employ the Heckman selection model to address this concern. The first stage is a Probit model predicting

what types of firms are more likely to be surveyed by the HRC. The second stage estimates the effects of CEI on firm valuation with the sample selection parameter—inverse Mills ratio (*Lambda*). The results in Table A3, Appendix S1 indicate that coefficients of CEI are still positive and statistically significant and *Lambda* is insignificant, suggesting that sample selection is not a significant issue in our study.

Finally, the error terms in Models (2) and (3) may be correlated and therefore estimating these two models separately may be inefficient. We use the seemingly unrelated regression (SUR) method to estimate a system of the two equations and the results in Table A4, Appendix S1 show that the coefficients of CEI are still significantly positive and their magnitudes are very close to those in Tables 4 and 5.

CONCLUSION AND DISCUSSION

Existing empirical studies on CSR and firm performance are inconclusive (Hillman and Keim, 2001; McWilliams and Siegel, 2000; Orlitzky, Schmidt, and Rynes, 2003; Wright and Ferris, 1997). We test directly how and through what channel a specific type of corporate social responsibility—corporate sexual equality—is related to firm performance. We find that firms with a higher degree of corporate sexual equality also have, on average, higher stock returns and higher market value. Beyond *ad-hoc* explanations, we further identify one channel, the labor market channel, to explain how firms benefit from treating their LGBT stakeholders fairly. Our results are robust to different model specifications to address the endogeneity issue, the sample selection bias, and correlations of error terms across equations. Particularly, the instrumental variable approach produces estimates consistent with the OLS regressions with year and industry fixed effects. Overall, the results show that employees value corporate sexual equality and firms benefit financially from embracing sexual equality policies.

Our study also has implications on human resource management. First, most of the existing CSR measurements focus on environmental issues and community involvement, but few on corporate sexual equality even though it is an important form of diversity management. Our study extends the CSR research scope to incorporate corporate sexual equality. Second, although

many studies provide evidence that LGBT people are discriminated in job market and workplace (Badgett, 1995; Badgett *et al.*, 2007), few studies show that such discriminatory behavior also hurts employers and shareholders financially. Our results demonstrate that implementing corporate sexual equality policies can enhance firms' financial performance, generating mutual benefits between employers and employees. Finally, a growing literature on diversity management emphasizes that non-discriminatory policies based on gender, sexual orientation, and minorities help recruit and retain talents and reduce legal issues, but there is little evidence on the financial benefit of diversity management. Our study provides evidence that diversity and inclusion based on sexual orientation improve firms' financial performance.

Our study explicates that socially responsible firms enjoy competitive advantages in labor markets. This suggests that current focus on socially responsible investment in the CSR literature will benefit from looking into these links. The need to attract talented employees plays a direct role in persuading firms to be more socially responsible. These findings should also be useful for people making decisions on corporate-equality-related investment, marketing and advertising, and hiring issues.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix S1. Further identification issues.