

An Institutional Approach to Gender Diversity and Firm Performance

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Letian Zhang
Harvard Business School

How does a firm's gender diversity affect its performance? Existing work has shown conflicting evidence: some finding a positive effect of gender diversity while others finding a null or a negative effect. However, most of the existing work have focused on a single industry or country and have not accounted for possible variation across social contexts. This paper advances an institutional framework and predicts that gender diversity's effect on performance is determined by both its normative and regulatory acceptance in the broader institutional environment. Using a unique longitudinal sample of 1,069 leading public firms in 35 countries and 24 industries, I find that the effect of gender diversity on performance varies significantly across countries and industries due to differences in institutional contexts. The more gender diversity has been normatively accepted in a country or industry, the more it benefits a firm's market valuation and revenue. These findings demonstrate the importance of the broader social contexts in shaping the consequences of gender diversity.

Keywords: diversity, gender, firm performance, institutional theory, cross-cultural.

INTRODUCTION

The women's rights movement has increased the number of women in workforces around the world (Ali, Kulik, and Metz, 2011), which has in turn raised the question of how an organization's gender diversity affects its outcomes. Recent work has generally taken one of two broad approaches. One suggests that gender diversity may signal to investors and other external stakeholders and influence their perceptions of a firm's value (Hannon and Milkovich 1996; Roberson and Park 2007; P. Wright et al. 1995). A second line of work focuses on gender diversity's role inside organizations, emphasizing both the positive effect of gender diversity in increasing innovative capacity and breadth of knowledge and its negative effect in disrupting social cohesion (e.g., Ali, Kulik, and Metz 2011; Cox 1994; Dwyer, Richard, and Chadwick 2003; Frink et al. 2003; Herring 2009; O. Richard et al. 2004; O. C. Richard, Ford, and Ismail 2006; Yang and Konrad 2011). However, despite a large number of studies using these two approaches, empirical evidence has been mostly mixed: some finding a positive effect of gender diversity while others finding a negative or a null effect (Post and Byron 2015). It remains largely unclear how gender diversity impacts a firm's performance.

But existing work has given little attention to the broader social context. This is an unfortunate oversight given the ways that societal norms and rules can influence how individuals approach diversity (Joshi and Roh 2009; Shore et al. 2009). In fact, institutional theory has long suggested that the institutional environment determines how workers, managers, and other stakeholders interpret and evaluate an organization's practices and structures (DiMaggio and Powell 1983; Ingram and Clay 2000; Meyer and Rowan 1977; Powell and DiMaggio 2012; Scott 1987; Suchman 1995; Zucker 1987).¹ Bringing in the institutional context may offer important insight to the diversity-performance relationship (Konrad, Yang, and Maurer 2016; Yang and Konrad 2011).

In this paper, I introduce an institutional perspective, proposing that the effect of gender diversity on firm performance, as measured by market valuation and firm revenue, depends on the acceptance of

¹ There are several alternative names for institutional environment (DiMaggio and Powell 1983), including organizational field (Scott 1991), institutional field (Meyer and Rowan 1977), societal sector (Scott and Meyer 1982), and institutional sphere.

gender diversity in the institutional environment. I distinguish between normative and regulatory institutions, defining *normative legitimacy* as the acceptance of a practice as appropriate and desirable based on shared organizational norms and values and defining *regulatory legitimacy* as the acceptance of a practice by regulators. I propose that both types of legitimacy influence the performance benefits of diversity and examine this proposition using a unique panel dataset of 1,069 leading public firms from 35 countries and 24 industries.

GENDER DIVERSITY AND FIRM PERFORMANCE

There are two broad approaches to understanding the effect of gender diversity on firm performance. One set of studies considers the effect of gender diversity on external evaluators' perceptions of a firm. This line of research focuses on outcomes such as organizational reputation, image, and market valuation. A second approach examines gender diversity's effects on workers and managers, focusing on outcomes related to productivity and revenue. While the two approaches focus on different processes, I suggest that these processes could be similarly affected by normative and regulatory environments.

Market Valuation

A firm's level of gender diversity can be an important investing criterion for investors (Lee and James 2007; Smith and Gaughan 2016). The rise of shareholder activism has encouraged more investors to become attentive to employment practices and has pushed more firms to disclose their diversity numbers in annual reports (Dobbin and Jung 2011; C. E. Hirsh and Cha 2015). As a number of studies have suggested, gender diversity can influence investment decisions because it is seen as important for a firm's long-term growth and because it signals a firm's commitment to progressive gender values and its attention to regulatory risks (Lamkin Broome and Krawiec 2008; Roberson and Park 2007; P. Wright et al. 1995). For example, studies find that firms ranked high on Fortune's diversity ranking tend to have higher market values, as do firms with more women in managerial positions (Carter, Simkins, and Simpson 2003; Dezsö and Ross 2012; Roberson and Park 2007). Similarly, firms typically experience a

jump in stock price after winning an award related to diversity initiatives (Hannon and Milkovich 1996; P. Wright et al. 1995). This perspective suggests that gender diversity can appeal to investors and benefit a firm's market valuation.

But there are also studies suggesting that because of gender stereotyping, organizations with women in leadership roles may experience negative market reactions. For instance, Ahern and Dittmar (2012) find an immediate stock price drop following the announcement of gender quota in Norway and lowered market valuation for affected firms in subsequent years. Similarly, some studies also find that the appointment of women directors and CEOs has led to negative market reactions (Dobbin and Jung 2011; Lee and James 2007). Thus, it is also possible that gender diversity has a negative effect on market valuation.

The effect of gender diversity on market valuation may be contingent on the social context. Norms and rules can shape investors' awareness of and preference for gender diversity. In fact, studies have found strong variation in people's attitudes toward gender diversity across national and industrial contexts (Jonsen, Maznevski, and Schneider 2011; Nishii and Özbilgin 2007). An examination across different social contexts may provide a better understanding of when gender diversity benefits market valuation.

Firm Revenue

A rich body of work has explored the effect of gender diversity on productivity and firm revenue. Related literatures differ in the level of analysis: some focus on gender diversity in small groups within a larger organization, while others on gender diversity in firms' workforces (see Joshi and Roh 2009; Van Knippenberg and Schippers 2007; Williams and O'Reilly III 1998 for reviews of group diversity; see Hoobler et al. 2016; Jeong and Harrison 2017; Post and Byron 2015 for a review of board diversity; and see McMahon 2010 for a review of workforce diversity). This study focuses on a firm's overall workforce gender diversity, although it also draws key insights from group-level studies.

There are two dominant perspectives on how gender diversity influences firm revenue. The first is a resource-based view that diversity is a valuable human resource that can increase productivity and help a firm make better strategic decisions. According to this value-in-diversity perspective, gender diversity increases the range of skills, perspectives, knowledge, and social networks available to a firm. These resources increase a firm's creative capacity and breadth of knowledge, resulting in better decision making, more innovation, and higher productivity (Cox 1994; DiTomaso, Post, and Parks-Yancy 2007; Herring 2009). A number of studies find that firms with gender-diverse workforces innovate better and thus achieve higher output and better returns (Ali, Kulik, and Metz 2011; Herring 2009; O. Richard et al. 2004; Yang and Konrad 2011).

An opposite perspective posits that diversity hurts productivity and firm revenue by lowering group commitment and organizational cohesion. Drawing from a combination of social categorization theory (Tajfel 1981), social identity theory (Turner et al. 1987), and the similarity-attraction paradigm (Byrne 1971; Ibarra 1992), this perspective suggests that, in gender-diverse groups, people are more likely to make favorable associations with ingroup members than with outgroup members. This can lead to conflict and stereotyping and hinder group solidarity and cooperation, thus reducing workplace efficiency (Coffman 2014; Cox 1994; Dezso, Ross, and Uribe 2016; DiTomaso, Post, and Parks-Yancy 2007; Tsui, Egan, and O'Reilly III 1992; Van Knippenberg and Schippers 2007; Williams and O'Reilly III 1998). Studies supporting this perspective find that gender diversity hampers productivity and reduces efficiency (Ahern and Dittmar 2012; Matsa and Miller 2013; O. Richard et al. 2004).

Gender diversity could be a double-edged sword, bringing performance gains to some firms and losses for others. To fully understand this process, it is crucial to identify conditions that help trigger one process rather than the other (Joshi and Roh 2009; Van Knippenberg and Schippers 2007). Existing research has mostly examined moderators at the group level, focusing on characteristics related to group interdependence and task type. But the broader social context could also be important. For instance, people's perceptions of and attitudes about gender could shape how they interact in gender-diverse settings, and these perceptions and attitudes are usually influenced by social norms at a societal level

(Cox 1994). Considering the wider social context in which a firm operates may help understand whether gender diversity benefits or harms productivity and firm revenue.

In sum, the literature has developed several theoretical mechanisms by which gender diversity can influence a firm's valuation and revenue, but they are often at odds with each other. Institutional theory offers a framework that explains how norms and rules influence organizational behavior and its consequences (DiMaggio and Powell 1983; Meyer and Rowan 1977). In the following, I suggest that incorporating this broader social context may help resolve these conflicting perspectives and shed new light on theories of gender diversity and performance.

AN INSTITUTIONAL APPROACH

Institutional theory suggests that organizations are located within institutional environments, defined as “the communities of organizations that share a common meaning system” (Scott 1995: 56). Norms and rules in the institutional environment have important consequences for organizations and their stakeholders, helping shape what organizational practices are considered legitimate (DiMaggio and Powell 1983; Ingram and Silverman 2002; Meyer and Rowan 1977). Legitimacy is the general assumption that a practice is desirable, proper, or appropriate within some socially constructed system of rules, norms, and values (Suchman 1995).

I focus on two broad types of legitimacy: normative and regulatory (Archibald 2004). Regulatory legitimacy refers to institutional processes based on monitoring, rule-setting, and sanctioning. A practice gains regulatory legitimacy when regulators support it, usually through policies and standards. Normative legitimacy emphasizes both normative and cognitive dimensions of legitimacy. A practice gains normative legitimacy when it is accepted as appropriate and desirable based on norms and values that are widely shared in the larger society (Aldrich and Fiol 1994; Archibald 2004; Zimmerman and Zeitz 2002). This definition of normative legitimacy is broader than that used in some studies, where normative institutions are equated with the particular ethics and worldviews of formal professions (e.g., DiMaggio

and Powell 1983; Scott 1995). I use the more comprehensive definition of normative institutions to include norms, values, and cultural cognitions in the broader institutional environment, including but not limited to professions (Archibald 2004; Deephouse and Suchman 2008; Suchman 1995).

Normative and regulatory legitimacy may interact and reinforce each other. Norms and values can influence regulators' perceptions of a practice and impact the content or enforcement of laws and policies. Similarly, regulatory frameworks can enact and transmit norms and values for organizations (Archibald 2004; Deephouse and Suchman 2008; Dobbin and Kelly 2007; Edelman 1992; Edelman, Fuller, and Mara-Drita 2001; Kelly and Dobbin 1998). Despite their reinforcing relationship, normative and regulatory legitimacy are distinct institutional forces and, as I propose below, they may moderate the consequences of gender diversity through different mechanisms.

Normative Legitimacy

I first propose that gender diversity's normative legitimacy may positively moderate its influence on market valuation. Investors generally find it difficult to assess the value of a firm's gender diversity. In the face of uncertainty, their perceptions are strongly influenced by norms in the institutional environment concerning how organizations should behave (Zajac and Westphal 2004). They tend to value normatively accepted practices – which may or may not confer any actual performance benefit – and to penalize practices that fall outside the normative expectation (Westphal and Zajac 1998; Zajac and Westphal 2004; Zuckerman 1999). In environments where gender diversity is normatively accepted, investors should be more likely to perceive it as beneficial to a firm's future performance. In addition, investors' preference for gender diversity may be reinforced by the expected positive response from other investors. As speculators, investors are concerned with other investors' behavior (Zajac and Westphal 2004). When the benefit of gender diversity is normatively accepted, investors may anticipate positive responses from other investors when a firm increases its gender diversity. In contrast, in contexts where gender diversity has not gained normative acceptance, investors may see it as irrelevant or even detrimental to a firm's future performance.

When gender diversity is normatively accepted, it can also provide a number of indirect benefits. Investors tend to see firms that follow normatively accepted practices as better managed than firms that do not (Zajac and Westphal 2004). Expecting firms to converge toward the norm— such as a more gender diverse workforce—investors may view an increase in a firm’s gender diversity as a signal that the firm is well-managed (Welbourne, Cycyota, and Ferrante 2007). But when gender diversity is not normatively accepted, investors may not expect firms to promote it and may not see changes in gender composition as a positive signal.

Hypothesis 1 (H1): Normative legitimacy of gender diversity positively moderates the effect of a firm’s gender diversity on its market valuation. Specifically, gender diversity has a more positive effect on market valuation in contexts in which it has more normative acceptance.

Normative legitimacy may also moderate gender diversity’s effect on firm revenue. First, the role of gender diversity in generating a wide variety of knowledge-based resources and innovative solutions may be contingent on its normative acceptance in the environment. When gender diversity is normatively accepted, workers and managers are more likely to value gender diversity and embrace gender differences in the workplace (Bilimoria 2006). This attitude is important in facilitating open and explicit discussion of different perspectives and integrating diverse knowledge and solutions to improve organizational effectiveness (Thomas and Ely 1996; Van Knippenberg and Schippers 2007). In contrast, when workers and managers do not value gender diversity, workgroup interactions tend to lack cross-cultural learning and women often cannot bring their unique skills and insights to bear on the work (Ely and Thomas 2001). Therefore, when workers and managers have accepted gender diversity as appropriate and desirable, gender diversity is more likely to increase a firm’s innovative capacity and breadth of knowledge, which can help it appeal to a wider range of customers and generate better strategies and solutions (Ali, Kulik, and Metz 2011; Cox 1994; Joshi and Roh 2009). Innovative capacity is particularly important in high-tech sectors where technical innovation is critical and in service industries where marketing innovation can create competitive advantage (Joshi and Roh 2009).

Second, the normative legitimacy of gender diversity can also moderate the social categorization process. When gender diversity is widely embraced, the exchange of different perspectives and knowledge creates a sense of inclusion and makes women workers and managers feel respected and valued for their contributions (Ely and Thomas 2001; Van Knippenberg, Haslam, and Platow 2007). The exchange of ideas also helps facilitate healthy interactions in the workplace, reducing the likelihood of discrimination and conflict (Van Knippenberg, van Ginkel, and Homan 2013; Van Knippenberg and Schippers 2007; Zhang 2017). When gender diversity is not valued, however, women workers and managers tend to experience more gender stereotyping, which could lead them to feel less attachment to the organization (Ely and Thomas 2001; Van Knippenberg, Haslam, and Platow 2007). Social cohesion is an important determinant of firm productivity: workers and managers put in more effort and create better synergy when they feel a stronger attachment to the firm (Ely and Thomas 2001; O. Richard, Ford, and Ismail 2006; Van Knippenberg and Schippers 2007).

Hypothesis 2 (H2): Normative legitimacy of gender diversity positively moderates the effect of a firm's gender diversity on its revenue. Specifically, gender diversity has a more positive effect on firm revenue in contexts in which it has more normative acceptance.

Regulatory Legitimacy

As in the case of normative legitimacy, regulatory legitimacy of gender diversity in the environment may also influence investors' perceptions of gender-diverse firms, thus affecting firms' market valuation. Firms that do not follow state-issued diversity regulations such as anti-discrimination and affirmative-action policies can suffer substantial reputational loss in addition to monetary fines (Hirsh and Cha 2015; James and Wooten 2004). A number of studies have found that firms suffer significant drops in their market value after involvement in diversity lawsuits, with an average decrease of 15.6 percent (Hersch 1991; James and Wooten 2004). In Norway, when the boardroom gender quota law was introduced, firms that had women on boards experienced significantly more positive market reactions than firms without any women on boards (Ahern and Dittmar 2012). These studies suggest that investors

are highly attentive to a firm's conformity to diversity regulations and that any indication of a firm's violation may lead them to preventively withdraw their investment.

In practice, because it is difficult to directly assess a firm's conformity to diversity regulations, a firm's diversity figures often become an important indicator of its conformity (Edelman 1992; Hirsh and Kornrich 2008). For example, equal employment opportunity (EEO) investigators in the United States frequently use workplace composition data to determine if a firm has used ascription in hiring and opportunity allocation (Hirsh and Kornrich 2008). In contexts where diversity laws exist, investors are more likely to pay attention to a firm's gender diversity numbers as an indicator of its litigation risk.

Hypothesis 3 (H3): Regulatory legitimacy of gender diversity positively moderates the effect of a firm's gender diversity on its market valuation. Specifically, gender diversity has a more positive effect on market valuation in contexts in which it has more regulatory acceptance.

However, it is also possible that investors may not be influenced by the regulatory environment to the same extent as they are by the normative environment. Investors, overwhelmed with information, may not have the attention span to closely follow a firm's conformity to regulations. Although studies have shown negative market reactions to diversity lawsuits, such lawsuits are generally few in number and are often hyped up by the media. In addition, when investors perceive a firm's gender diversity as imposed by regulators, they could interpret it as nothing more than symbolic "window dressing" and may even react to it negatively. For instance, Ahern and Dittmar (2012) show that increases in board gender diversity after the introduction of the quota rule in Norway lead to negative market reactions, largely because investors see the newly appointed women directors as less competent than the existing directors, installed only to meet the quota. Therefore, there are also reasons to believe that the moderating role of the regulatory environment may be insignificant.

Finally, gender diversity's regulatory legitimacy may also positively influence patterns of interaction among workers and managers inside a diverse firm, affecting its productivity and output.

When regulators endorse diversity, people are more likely to see the presence of women in the workforce and leadership positions as legitimate. For example, experiments show that when higher authorities institutionalize women's leadership, subjects are less likely to gender stereotype and are more likely to see women leaders as competent (Lucas 2003). Similar to the mechanisms underlying the construction of H2, I expect the regulatory acceptance of gender diversity to reduce gender stereotyping and encourage women workers and managers to contribute their unique views and perspectives, which could increase productivity and improve decision making, leading to higher revenue for the more gender-diverse firms.

Hypothesis 4 (H4): Regulatory legitimacy of gender diversity positively moderates the effect of a firm's gender diversity on its revenue. Specifically, gender diversity has a more positive effect on firm revenue in contexts in which it has more regulatory acceptance.

However, there is also evidence that calls into question the positive impact of regulatory legitimacy. For one thing, affirmative action laws sometimes lead employees to perceive women workers and managers as less competent (e.g., Heilman, Block, and Stathatos 1997). Such bias can marginalize women workers and managers and reduce cross-group communication. In addition, while diversity regulation can reduce open discrimination, it may also discourage people from openly confronting different perspectives and viewpoints. In a qualitative study, Ely and Thomas (2001) find that when workers and managers see diversity as a prevention of discrimination rather than as a valuable asset, there tends to be less cross-group interaction and learning. That is, when workers see diversity as a result of regulatory compliance rather than a way to capitalize on an asset, diversity has less positive impact on innovation and problem solving (Ely and Thomas 2001; Thomas and Ely 1996). For these reasons, it is possible that regulatory legitimacy has minimal moderating influence on productivity and firm revenue.

METHODS

I examine the effect of gender diversity on firm performance across two types of institutional contexts: countries and industries (Thornton and Ocasio 2008). First, gender diversity regulation and norms are

often country-specific. In most cases, the state is responsible for conferring regulatory legitimacy through the establishment and enforcement of employment regulations. Similarly, the normative discourses on gender diversity also show significant cross-national variation (P. Wright et al. 1995). For example, both the national media and the general public can contribute to the emergence of country-specific gender diversity norms (Jonsen, Maznevski, and Schneider 2011). Past cross-national studies on diversity management have found that national context strongly shapes both regulatory and normative legitimacy of gender diversity in organizations (Christiansen 2016; Klarsfeld 2010; Nishii and Özbilgin 2007).

Second, the normative and regulatory legitimacy of gender diversity can also be industry-specific. Each industry faces a unique set of task environments, so investors and workers may see the importance of gender diversity in some industries but not in others (Ali, Kulik, and Metz 2011; Joshi and Roh 2009). In addition, organizations in the same industry share a common meaning system (Scott 1995; Scott and Meyer 1982). Each industry also has its professional norms and industry standards that are constantly reinforced by industry-wide associations and by interactions among industry peers, often at the global level (Arias and Guillen 1998; Wooten and Hoffman 2016). Thus, the normative and regulatory legitimacy of diversity should differ significantly across industries.

This study examines leading firms in different countries and industries. Larger firms face stronger institutional pressure because they tend to attract more scrutiny from regulators, investors, media, and the general public. This higher level of scrutiny also pushes many of them to disclose workforce diversity numbers on a regular basis. These characteristics make these firms an ideal setting for examining how institutional environment shapes investors', workers', and managers' approaches to gender diversity.

Data

The sample includes leading public firms from 35 countries and 24 industries and spans from 2007 to 2014. To construct the sample, I began with the firms listed on the S&P Global Index, which represents the movement of the global stock market and is one of the most commonly used global indices (Hansen, Ibarra, and Peyer, 2013). It contains 1,200 leading public corporations, including 500 listed on

US exchanges (S&P 500 Index), 350 in Europe (S&P 350 European Index), 150 in Japan, and 200 from rest of the world. Because firms outside North America, Western Europe, and Japan are underrepresented, I supplemented the sample by drawing from the leading index in each of the following major markets: Australia (ASX 200 Index), Austria (VSE Austrian Traded Index), Brazil (Bovespa Index), China and Hong Kong (Hang Seng Index), Colombia (COLCAP Index), India (BSE Sensex Index), Indonesia (JSE LQ45 Index), Israel (Tel Aviv 25 Index), Malaysia (KLCI Index), Philippines (Philippines SE Index), Russia (MICEX Index), Singapore (FTSE Straits Times Index), South Africa (BSE Sensex 30 Index), South Korea (KOSPI 50 Index), and Thailand (Thai SET 50 Index). Nine countries and regions have fewer than five firms in the sample: Bermuda, Jersey, Jordan, Luxembourg, Macau, Malta, Panama, Peru, and Portugal. Because this small number of observations may not offer good representation, I excluded firms headquartered in these countries from the analysis. This filtering gives 1,703 firms across 35 countries and 24 industries. I classified industries according to the Global Industry Classification Standard (GICS), which is widely used internationally (Bhojraj, Lee, and Oler 2003).

I gathered gender composition and financial data on each firm from Bloomberg, a widely used financial database that provides company profiles and financial statements. Bloomberg collects a firm's workforce diversity information from its annual reports. An increasing number of firms have begun to report their workforce gender composition annually to investors as part of disclosure on corporate social responsibility. Many of these reports help investors learn not only a firm's current gender diversity numbers, but also how these numbers compare to numbers from past years. For example, Google's 2015 report states: "31% of our employees were women, a 1% increase from last year" (Google CSR report, 2015). Among the 1,703 firms in my sample, 1,069 (63%) have disclosed their workforce gender composition through such reports, and have, on average, 4.7 years of observations between 2007 and 2014. Most of the firms missing this information are headquartered in Asia and North America. Because selection bias could potentially confound the results, in addition to analyses on the full sample, I ran separate analyses on firms headquartered in Europe and Latin America, where selection bias is a relatively minor issue. Findings from this sub-sample are substantively similar to findings from the full

sample.

Finally, while I used the country location of each firm's headquarter, it is possible that some firms focus heavily on an overseas market and are therefore subject to a different set of institutional norms. To address this issue, I obtained data on firms' market distribution by geography from Bloomberg and designated a firm as overseas-oriented if its largest geographical market segment is a different country from its headquarter. Out of the 1,069 firms in the main sample, 202 (19%) are categorized as overseas-oriented. I ran a robustness check by grouping these overseas-oriented firms into a separate country category in calculating normative legitimacy. This alternative categorization does not substantively change the results.

Table 1 gives a detailed breakdown of the sample by country and industry.

Analytic Strategy

I used linear regression models with fixed effects on both firms and country-year dyads. A firm fixed-effects model accounts for unobserved time-invariant firm characteristics that might affect outcome variables. In this sample, 5.8 percent of the firms have a single observation and are therefore dropped in firm fixed-effects models. The average firm in the sample experiences a 9-percent change in the number of female workers, suggesting at least some within-firm variation in gender composition during the study period.

Likewise, I included country-by-year dyadic fixed effects to account for country-level changes each year, since a firm's stock price and revenue can be driven by a country's economic growth. The inclusion of country-year-dyad fixed effects controls for country-level differences among firms, eliminating the need for other country-level controls in the model.

While the large number of parameters used in fixed-effects models makes them less efficient than random-effects models, they provide more stringent tests of hypotheses (Halaby 2004; Kalev, Dobbin, and Kelly 2006). As an alternate assessment, I also performed analyses using firm random-effects models.

Because fixed effects cannot account for time-varying within-cluster correlation, I clustered standard errors at the firm level.

Dependent Variables

I used two measures of firm performance: Tobin's Q and return on assets (ROA). Tobin's Q is a firm's market value over the replacement value of its assets. Because investors decide the market value, Tobin's Q directly measures the market's perception of a firm's long-term value. ROA measures actual return without taking into account stock market speculations. As Table 2 shows, the two measures are correlated at 0.5. Because ROA can influence market valuation, I included ROA as a control in models predicting Tobin's Q.

Gender Diversity Measure

To measure a firm's gender diversity in a given year, I used the conventional Blau's index (e.g., Ali, Kulik, and Metz 2011; O. Richard et al. 2004): $Gender\ diversity = 1 - (pct\ women\ workers)^2 - (pct\ men\ workers)^2$. The resulting variable ranges from 0 to 0.5, with a higher value indicating greater gender diversity. I lagged measures of gender diversity by one year. As a robustness check, I replaced Blau's index with the percent of female workers in a firm. The percent of female workers and Blau's index are highly correlated ($cor=0.8$), and the resulting models are substantively similar.

Measures of Normative and Regulatory Legitimacy

I measured normative legitimacy of gender diversity using two methods. The first is the prevalence of women on boards of directors in each country and industry. The placement of women in important and visible leadership positions signals that organizations value gender diversity and perceive the presence of women in their workforces as appropriate and desirable (Lamkin Broome and Krawiec 2008; Dezso, Ross, and Uribe 2016; Dobbin and Jung 2011; Skaggs, Stainback, and Duncan 2012). For example, cross-national analyses found that the prevalence of women on boards in a country is strongly

correlated with various other proxies of that country's diversity norms (Grosvold 2011; Terjesen and Singh 2008).

The main sample is biased toward larger firms, so I gathered a more representative sample of firms in each country and industry to measure the prevalence of women on boards. The S&P Global Broad Market Index is one of the broadest and most representative stock indices: it covers 11,000 firms from around the world and includes not only large-cap firms, but also middle- and small-cap ones. Bloomberg offers annual data on board composition for over 80 percent of the firms in the Broad Market Index.² Using this more representative sample, I constructed normative legitimacy based on the average percentage of women on boards in a country or industry.

The second measure of normative legitimacy is the percentage of firms in a country or industry that have publically announced pro-diversity policies or programs. Past studies have suggested that organizations' public commitment to diversity reflects normative legitimacy of diversity in the institutional environment (Dobbin, Kim, and Kalev 2011; Edelman 1992). Every year, Bloomberg tracks over 8,000 firms in the Broad Market Index on whether or not they have announced a commitment to promote diversity, either through press releases or investors' reports. These commitments include policies or programs aimed at increasing diversity, ensuring equal employment, or promoting affirmative action. The two measures of normative legitimacy are moderately correlated (0.5 at the country level and 0.4 at the industry level).

To measure regulatory legitimacy, I used the Women, Business, and the Law database provided by the World Bank Group to examine each country's legal environment for women in the workplace. Starting in 2010, the World Bank Group issues biannual reports that measure gender inequality in the law for over 140 countries. These reports are compiled by a team of experienced lawyers and legal experts, who use a consistent set of metrics across countries in evaluating legal frameworks to "ensure data comparability" (World Bank Group, 2016). A section of the report focuses on regulatory environment for

² The Bloomberg database has much more complete coverage for board data than for workforce data. For most of the 11,000 firms in the Broad Market Index, Bloomberg provides board data but not workforce data. Hence, I use the Broad Market Index only to measure normative legitimacy in each country and industry.

women in the workplace, including laws on maternity and parental leave, equal remuneration and nondiscrimination, retirement age, and legal restrictions to certain occupations and tasks. Using this information, the 2016 report provides a score for each country's legal environment for women in the workplace. I applied its methodology to legal data from the 2010 and 2012 reports and calculated each country's score from 2007 to 2014, which I used as my measure of each country's regulatory legitimacy. Appendix 1 includes more details on the construction of this variable.

As discussed earlier, normative and regulatory legitimacy may mutually influence each other. Not surprisingly, in my sample of countries, the regulatory-legitimacy measure and the two normative-legitimacy measures have positive correlations (0.2 and 0.3 at the country-year level). But as Figure 1 shows, there are also countries that rank high in one type of legitimacy but not in the other, suggesting that the two types of legitimacy also maintain considerable distinctions. For example, both Japan and South Korea have relatively high levels of regulatory support for women in the workplace, but the normative acceptance of gender diversity remains weak in these countries.

[Insert Figure 1 here]

Controls

I included the following time-varying firm-level variables: number of employees, the percentage of employee turnover, a firm's diversity policy, and the percentage of women on the board (Dobbin and Jung 2011). The number of employees accounts for a firm's size and the percentage of employee turnover controls for possible firm downsizing, which may influence performance. I collected this information from Bloomberg. At the country level, I included a country's gender wage gap, female-to-male ratio for years of schooling, and GDP per capita, and interacted them with gender diversity as additional controls. Gender wage gap and female-to-male ratio for years of schooling help capture gender differences in human capital and workplace hierarchy, which could confound the performance effect of gender diversity. It is worth pointing out that although wage and education gender gaps could reflect a country's institutional environment, they are also influenced by other factors and are only weakly correlated with a

country's normative and regulatory acceptance of gender diversity (at country-year level, none of the correlations surpasses 0.2). Data for these variables come from the Organisation for Economic Co-operation and Development (OECD) and the International Labour Organization (ILO), among other sources.³ Finally, at the industry level, I adopted Joshi and Roh's (2009: 613) criteria and categorize each firm into manufacturing, service, or high-tech based on its main industry, then interacted gender diversity with the firm's industry type to account for differences in industry activities. I also controlled for each industry's gender segregation and interacted it with gender diversity to consider the possibility that gender diversity may embody different meanings in highly segregated industries and in industries with no segregation. I obtained each industry's level of gender segregation from Cartwright, Edwards, and Wang (2011), who constructed these values based on data from the US.

[Insert Table 2 here]

RESULTS

Results suggest that gender diversity's normative legitimacy positively moderates its effect on market valuation and firm revenue, while its regulatory legitimacy has a more limited moderating effect. Table 3 uses linear models with firm fixed effects on the entire sample; Table 4 includes additional variables to account for alternative explanations; Table 5 includes lagged dependent variables to account for autocorrelation and reverse causality; and Table 6 uses firm random effects instead of fixed effects to give between-firm comparisons.

Table 3 uses firm fixed effects. Models 1 and 6 examine the direct effects of gender diversity on ROA and Tobin's Q. Gender diversity by itself does not have a statistically significant impact on either revenue or market valuation, a result mostly consistent with previous studies (Ali, Kulik, and Metz 2011; O. Richard, Ford, and Ismail 2006). But normative and regulatory legitimacy in the institutional environment has significant moderating effects. Models 2 through 5 show that all measures of normative

³ The main data source on gender wage gap and on educational attainment by gender comes from OECD and ILO. For countries not included in these two databases, I draw data from wageindicator.org, the United Nations Economic Commission for Europe (UNECE), United Nations Human Development Reports, and World DataBank from the World Bank Group.

legitimacy, at both the country and industry levels, positively moderate the effect of gender diversity on ROA. Models 3 and 4 include a country's regulatory legitimacy, which also positively moderates the effect of gender diversity on ROA. Models 7 through 10 use Tobin's Q as the measure of firm performance and show a similar pattern. Normative and regulatory legitimacy of gender diversity, at both the country and the industry levels, positively moderate the effect of gender diversity on Tobin's Q. It is worth noting that models predicting Tobin's Q control for ROA, so the observed effects are due to investors' perceptions of a firm's future value beyond its current revenue. Figures 2 and 3 offer visual illustrations of these patterns. Figure 2 shows that when a country has high levels of normative and regulatory legitimacy of gender diversity (1 SD above the mean), an increase in gender diversity has a statistically significant positive effect on both a firm's ROA ($b=14.7$) and its Tobin's Q ($b=0.69$). However, the same increase in gender diversity has a negative effect on a firm's ROA ($b=-29.2$) and Tobin's Q ($b=-0.89$) when the firm is located in a country with low levels of normative and regulatory legitimacy of gender diversity (1 SD below the mean). Figure 3 shows a similar pattern cross industries: an increase in gender diversity has a positive effect on a firm's ROA and Tobin's Q in industries that have higher levels of normative legitimacy but a negative effect in industries that have lower levels of normative legitimacy. Overall, Table 3 suggests that both normative and regulatory acceptance make gender diversity more beneficial to a firm's revenue and market valuation.

[Insert Table 3 here]

[Insert Figures 2, 3 here]

Table 4 includes interactions between gender diversity and additional country- and industry-level variables to account for possible confounders. First, countries vary in their gender wage gaps (E. O. Wright, Baxter, and Birkelund 1995). In some less liberalized markets, gender diversity may simply be a way to lower costs, rather than reflecting an institutional norm (Klarsfeld 2010). To account for this possibility, I included the interaction between gender diversity and the country's gender wage gap. A second possibility is that cross-national differences in human capital gaps by gender may contribute to the findings in Table 3. It is possible that those countries that have legitimized gender diversity in the

workplace also have a smaller gender gap in human capital. I addressed this possibility by including the interaction between gender diversity and female-to-male ratio of years of schooling. Third, a country's economic development may also moderate the impact of gender diversity on performance (Klarsfeld 2010). I used a country's annual logged GDP as a control and interacted it with gender diversity in Table 4. Fourth, past research shows that the effect of organizational diversity differs between technology, service, and manufacturing industries (Ali, Kulik, and Metz 2011; Joshi and Roh 2009). I controlled for the interaction between gender diversity and industry type in the models in Table 4. Fifth, research has shown significant cross-industrial differences in patterns of gender segregation (Wharton and Baron 1987). It is possible that in highly gender-segregated industries there is little opportunity for cross-gender interaction and hence gender diversity has little meaning to firms, workers, and investors. For this reason, I controlled for the interaction between gender diversity and industry-level gender segregation. Most of these additional interaction terms do not significantly moderate the effect of gender diversity, with the exception of industry type. Gender diversity tends to have a more positive effect in service industries, as is evident in Models 2, 4, and 7. This is presumably because service industries require more customer interaction, innovation, and problem solving, all of which could benefit from gender diversity. Gender diversity also has a more positive effect on Tobin's Q in technology industries, but surprisingly, a more negative effect on ROA in these industries. Firms in high technology industries require more creativity and innovation, so they should benefit more from gender diversity. The negative effects on ROA in technology industries are inconsistent with theoretical expectations, but they are consistent with previous empirical findings (Joshi and Roh 2009).

For the purpose of examining the main hypotheses, the inclusion of these additional interaction terms in Table 4 does not substantively change the main findings. Consistent with Table 3, both normative and regulatory legitimacy moderate the effect of gender diversity on ROA and Tobin's Q.

[Insert Table 4 here]

Table 5 includes lagged dependent variables to account for autocorrelation and reverse causality. It is possible that a firm's past performance influences its subsequent engagement with diversity and

inclusion (Zhang 2018). I used Arellano-Bover linear dynamic panel-data estimation, which uses an instrument approach and is designed for datasets with many panels and few periods (Blundell and Bond 1998). This approach produces some results that are consistent with findings in Table 3, as well as a few that are notably different. First, consistent with the previous models, an industry's normative acceptance of gender diversity positively moderates the effect of gender diversity on both ROA and Tobin's Q, as shown in Models 3, 5, 8 and 10. Second, a country's normative acceptance positively moderates the effect of gender diversity when it is measured using the percentage of firms with diversity policies (Models 4 and 9), but not when it is measured using the average percentage of women board members (Models 2 and 7). Third, a country's regulatory environment no longer shows a significant influence on the effect of gender diversity (Models 4 and 9). Overall, these models provide evidence that gender diversity's normative legitimacy shapes its effect on performance, but its regulatory legitimacy does not.

Finally, Table 6 uses random effects instead of fixed effects at the firm level. In predicting ROA, Models 1 through 5 show findings consistent with those in Table 3. Both normative and regulatory environments positively moderate the effect of gender diversity on ROA. In predicting Tobin's Q, normative legitimacy positively moderates the effect of gender diversity when it is measured using the percentage of firms with diversity policies, but this moderation effect becomes null when using the average percentage of women board members to measure the normative environment. In Models 7 and 9, regulatory environment does not have a significant influence on how gender diversity affects Tobin's Q.

[Insert Table 6 here]

In sum, results generally support the hypotheses, but more so for hypotheses regarding the normative environment (H1 and H2) than the regulatory environment (H3 and H4). There is fairly strong evidence that gender diversity's normative acceptance in the environment positively shapes its effect on both firm revenue and market valuation, but only weak evidence that its regulatory acceptance has such an effect.

CONCLUSION

How does gender diversity influence firm performance? I suggest that the answer depends on the institutional context. Using a unique longitudinal dataset of 1,069 firms in 35 countries and 24 industries, I show that the broader social acceptance of gender diversity is an important determinant of whether or not gender diversity benefits a firm. The more gender diversity has been normatively accepted in a country or industry, the more it benefits a firm's market valuation and revenue.

This study uses institutional theory to explain the effect of gender diversity on firm performance. A rich literature has emerged around gender diversity and performance in recent years. But this crowded literature has produced highly inconsistent predictions and findings: some propose and find a positive effect of gender diversity on performance, while others show a negative effect. As recent review articles and meta-studies have pointed out, it appears that gender diversity could benefit performance in some settings and hurt it in others, and the conditions that moderate the effect of gender diversity still need more exploration (Post and Byron 2015; Joshi and Roh 2009). In identifying these conditions, most studies have focused on moderators at the group level. This study shifts the focus to macro-level contexts by examining cross-national and cross-industrial variations in the effect of gender diversity. Social norms and regulations could influence how investors, workers, and managers perceive and approach gender diversity. For instance, in some countries and industries, people see gender diversity as a valuable asset that can improve productivity and decision making, so investors may prefer gender-diverse firms and workers and managers may approach gender diversity positively. But in those countries and industries where gender diversity is not valued, investors may see gender diversity as detrimental to firms' future performance and women workers and managers may experience more stereotyping and discrimination in the workplace. Thus, the institutional environment determines people's attitudes and approaches toward gender diversity and shapes its consequences.

In investigating the effect of institutional context, this study differentiates between normative and regulatory environments. Across most models, normative legitimacy of gender diversity has a significant and positive moderating influence on how gender diversity affects firm performance, suggesting that social norms play an important role in shaping how investors, workers, and managers approach gender

diversity. Regulatory legitimacy of gender diversity shows a significant effect in some models, but not in others. It is possible that the regulatory environment has less influence on investors, workers, and managers than the normative environment. When investors, workers, and managers see diversity as a regulatory requirement and do not accept its value, they may simply ignore it or even approach it negatively. Hence, gender diversity may not bring positive consequences to a firm when it has been accepted by regulators but not by societal norms. This possible distinction between normative and regulatory institutions can help us better understand the workings of various types of institution (Aldrich and Fiol 1994; Archibald 2004; Deephouse and Suchman 2008; Scott 1995; Zimmerman and Zeitz 2002).

While the results draw out a possible distinction between normative and regulatory institutions, I also recognize their influence on each other. In particular, regulations can help shape organizational actors' perceptions of the appropriate norms for their organizations; for example, the EEO law in the US led to the emergence of a group of diversity experts whose advocacy over time promoted the normative acceptance of diversity (e.g., Edelman 1992; Dobbin and Kelly 2007; Kelly and Dobbin 1998). In this study, for example, a country's employment laws on gender may influence its firms' willingness to hire women directors and adopt diversity policies and vice versa, as evident from the positive correlation between these measures. Future research should further explore this interplay between normative and regulatory forces in the broader institutional environment.

In terms of design, the cross-national sample used in this study offers a unique opportunity to explore diversity issues in a global context. Existing research on gender diversity and performance tends to focus on the United States and other western countries (Jonsen, Maznevski, and Schneider 2011; Nishii and Özbilgin 2007). This study shows important cross-national differences in the effects of gender diversity. Given the generally higher levels of gender-diversity acceptance in western countries, the benefit of gender diversity should be more readily visible there than in Asia, Latin America, Middle East, and Africa. These important cross-national differences imply that research findings from the United States and Europe cannot be directly extrapolated to non-western countries and suggest that future studies should examine gender diversity and firm performance in non-western contexts.

This study has limitations. First, the focus on leading firms may create generalizability issues. While leading firms offer an advantageous study setting because of their greater connection to the institutional environment, some of the observed institutional effects may be less salient in smaller firms. Second, while this study examines gender diversity in the general workforce, a separate literature has focused on diversity in top management teams (Jeong and Harrison 2017; Post and Byron 2015). Workforce diversity and top management diversity have important distinctions (O. Richard 2000), so it is not clear whether the hypothesized institutional influences apply to gender diversity in top management teams. This could be an interesting direction for future research.

Going forward, it is worth to further explore the role of the broader social contexts in shaping how gender diversity influences firm outcomes. The value of gender diversity can be socially constructed; how people perceive it and approach it depends on the broader normative environment. The more people accept gender diversity, the more they are going to embrace it and the more it can benefit an organization. For this reason, analysis of gender diversity and its impact should pay close attention to the broader social contexts. A fruitful research direction is to continue use a cross-industrial and a cross-country design to identify contextual variations in how gender diversity influences performance. In addition, while this study focuses on gender diversity, institutional environment may also affect the way we perceive minority managers and workers; thus it can also be worthwhile to explore how institutional contexts moderate the impact of other forms of diversity, such as race, ethnicity, and nationality.

In conclusion, as women continue to make progress in organizations, understanding the consequences of workforce gender diversity has significant implications for both practitioners and researchers. Using a cross-national and cross-industrial design, this study shows the importance of institutional norms in shaping the consequences of gender diversity on organizational performance. This study encourages future research to take into account broader social contexts in seeking to understand the relationship between gender diversity and performance.

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TABLES AND FIGURES

Table 1a: Firm Distribution by Country

Country	Num firms in main sample	Num firms with valid data	Average pct of women workers in sample	Pct women among all board members	Pct firms with diversity policies	Laws supporting women at work (score)
Australia	187	142	36	11	77	6.5
Austria	20	15	27	9	77	10
Belgium	10	10	41	11	68	9.3
Brazil	66	58	28	5	72	7
Canada	57	47	31	11	42	8
Chile	5	5	26	3	58	6
China	16	14	43	8	38	6
Colombia	20	18	36	9	59	5
Denmark	10	10	44	16	63	8
Finland	9	9	32	23	75	10
France	48	47	38	15	86	8
Germany	39	39	30	13	72	10
Hong Kong	36	21	43	9	36	7
India	30	22	14	4	36	5
Indonesia	44	12	15	5	75	5
Ireland	14	7	31	9	57	7
Israel	19	6	45	17	64	7
Italy	18	18	31	8	68	8
Japan	150	44	27	1	43	10
Malaysia	17	13	37	8	59	4
Mexico	10	9	23	6	67	6
Netherlands	17	15	37	13	76	9
Norway	6	6	30	37	86	8
Philippines	30	7	40	11	57	5
Russia	14	10	44	11	33	8
Singapore	26	13	39	6	36	5
South Africa	30	30	41	16	83	6
South Korea	21	21	25	1	61	8
Spain	20	20	37	10	84	9
Sweden	26	26	36	27	84	8
Switzerland	33	32	39	9	65	6.6
Taiwan	12	12	37	5	67	8
Thailand	50	16	35	8	63	4
United Kingdom	105	103	40	12	90	7
United States	488	192	35	12	51	6
Total	1703	1069	35	10	67	7.3

Table 1b: Firm Distribution by Industry

GICS industry group	Num firms in main sample	Num firms with valid data	Average pct of women workers in sample	Pct women among all board members	Pct firms with diversity policies
Automobiles & Components	42	24	14	6	66
Banks	130	89	55	12	59
Capital Goods	159	87	21	9	46
Commercial & Professional Services	46	34	34	12	77
Consumer Durables & Apparel	52	34	44	12	67
Consumer Services	46	26	47	12	69
Diversified Financials	68	37	42	11	64
Energy	117	79	24	8	59
Food & Staples Retailing	28	20	51	14	62
Food, Beverage & Tobacco	82	46	31	11	75
Health Care Equipment & Services	53	23	54	13	72
Household & Personal Products	20	14	43	17	67
Insurance	52	31	54	13	72
Materials	194	151	17	8	67
Media	51	32	48	14	64
Pharmaceuticals & Biotechnology	56	30	46	10	66
Real Estate	102	50	48	10	61
Retailing	64	31	56	15	53
Semiconductors	25	10	32	7	72
Software & Services	51	26	30	10	69
Technology Hardware	44	22	33	9	75
Telecommunication Services	52	38	39	11	90
Transportation	63	46	32	10	73
Utilities	106	89	23	12	48
Total	1703	1069	35	9	57

Table 2a: Variable Summary

Variables	Mean	SD	Min	Max
1 Gender Diversity (t-1)	0.39	0.1	0	0.5
2 Country Avg Female Pct on Boards	0.11	0.1	0.01	0.38
3 Industry Avg Female Pct on Boards	0.09	0.02	0.03	0.15
4 Country Pct Firms with Diversity Policy	0.67	0.2	0.07	0.96
5 Industry Pct Firms with Diversity Policy	0.57	0.1	0.22	0.90
6 Country Laws Supporting Women at Work	7.3	1.5	4	10
7 Debt-to-Equity Ratio (log)	4.0	1.4	0	11.8
8 Total Employees (log)	9.9	2.0	1.4	21.7
9 Employee Turnover (pct)	0.03	0.3	-5	1
10 Firm Diversity Policy	0.87	0.3	0	1
11 Pct Females on Boards	0.15	0.1	0	0.7
12 Return on Assets	5.2	8.1	-84	115
13 Tobin's Q (log)	0.28	0.6	-3.5	3.6

Table 2b: Correlations

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Gender Diversity (t-1)	1												
2 Country Avg Female Pct on Boards	0.1	1											
3 Industry Avg Female Pct on Boards	0.4	0.1	1										
4 Country Pct Firms with Diversity Policy	0.1	0.5	0.2	1									
5 Industry Pct Firms with Diversity Policy	0.0	0.2	0.4	0.4	1								
6 Country Laws Supporting Women at Work	-0.0	0.1	-0.1	0.2	-0.1	1							
7 Debt-to-Equity Ratio (log)	0.1	0.0	0.1	0.0	0.0	0.0	1						
8 Total Employees (log)	0.0	-0.0	-0.0	0.0	0.1	0.0	0.1	1					
9 Employee Turnover (pct)	-0.0	-0.0	-0.0	0.0	0.0	-0.1	-0.1	0.2	1				
10 Firm Diversity Policy	0.1	0.2	0.0	0.2	0.1	0.0	0.0	0.2	-0.0	1			
11 Pct Females on Boards	0.2	0.6	2.2	0.2	0.1	-0.0	0.1	0.1	-0.1	0.1	1		
12 Return on Assets	-0.0	0.0	-0.0	-0.0	0.0	-0.2	-0.3	-0.0	0.1	0.0	0.0	1	
13 Tobin's Q (log)	0.1	0.1	0.00	-0.0	0.1	-0.2	-0.3	-0.0	0.00	0.0	0.1	0.5	1

Table 3 Predicting Firm Performance, 2007-2014

Variable	ROA					Tobin's Q				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gender Diversity (t-1)	-9.56 (5.76)	-103.36** (23.68)	-35.69** (8.38)	-99.67** (24.35)	-27.82** (7.27)	-0.20 (0.25)	-3.37** (1.00)	-1.28** (0.47)	-3.29** (1.02)	-0.87* (0.38)
Gender Diversity (t-1) x Country Avg Female Pct on Board		75.74* (32.34)					3.75* (1.48)			
Gender Diversity (t-1) x Industry Avg Female Pct on Board			362.21** (86.78)					14.95** (5.39)		
Gender Diversity (t-1) x Country Pct Firms with Diversity Policy				17.38* (8.41)					1.21** (0.41)	
Gender Diversity (t-1) x Industry Pct Firms with Diversity Policy					38.24** (9.17)					1.38* (0.54)
Gender Diversity (t-1) x Country Laws Supporting Women at Work		12.04** (2.88)		11.01** (2.83)			0.39** (0.12)		0.32** (0.12)	
Debt to Equity Ratio (log)	-2.38** (0.29)	-2.36** (0.29)	-2.32** (0.29)	-2.34** (0.29)	-2.29** (0.29)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)
Total Employees (log)	-0.37 (0.20)	-0.34 (0.19)	-0.37 (0.20)	-0.33 (0.19)	-0.36 (0.20)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Employee Turnover (in pct)	1.12* (0.51)	1.13* (0.51)	1.13* (0.51)	1.12* (0.51)	1.11* (0.52)	0.03* (0.01)	0.03* (0.01)	0.03* (0.01)	0.03* (0.01)	0.03* (0.01)
Firm Diversity Policy	-0.59 (0.50)	-0.55 (0.50)	-0.44 (0.50)	-0.44 (0.50)	-0.33 (0.50)	0.03 (0.02)	0.03 (0.02)	0.04 (0.02)	0.04 (0.02)	0.04 (0.02)
Female Pct on Boards	0.11 (2.44)	0.03 (2.43)	0.18 (2.42)	0.05 (2.42)	0.14 (2.41)	-0.15 (0.08)	-0.15 (0.08)	-0.15 (0.08)	-0.15 (0.08)	-0.15 (0.08)
Industry Avg Female Pct on Board	17.67 (21.86)	28.84 (21.77)	-115.24** (39.70)			-0.44 (1.08)	0.05 (1.07)	-5.92* (2.45)		
Industry Pct Firms with Diversity Policy				-4.45 (2.84)	-20.63** (4.69)				-0.34** (0.13)	-0.93** (0.29)
Return on Assets						0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Constant	-9.75 (21.84)	32.59 (24.14)	21.50* (8.75)	54.34** (14.22)	22.64* (9.44)	-2.67** (0.84)	-1.23 (0.95)	-0.38 (0.36)	1.70** (0.57)	0.65 (0.39)
Observations	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006
R-squared	0.14	0.15	0.15	0.15	0.15	0.42	0.42	0.42	0.43	0.42
Number of firms	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: robust standard errors clustered by firm; ** p<0.01, * p<0.05

Table 4 Predicting Firm Performance, Additional Controls

Variable	ROA					Tobin's Q				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gender Diversity (t-1)	-63.93 (88.79)	-93.04 (88.46)	-27.54 (87.66)	-94.32 (89.01)	-24.53 (88.17)	-5.53 (4.10)	-6.29 (4.16)	-4.14 (3.95)	-6.21 (4.08)	-4.07 (3.98)
Gender Diversity (t-1) x Country Avg Female Pct on Board		81.32* (32.16)					3.78* (1.57)			
Gender Diversity (t-1) x Industry Avg Female Pct on Board			365.59** (91.59)					14.14* (5.84)		
Gender Diversity (t-1) x Country Pct Firms with Diversity Policy				19.87* (8.46)					1.30** (0.43)	
Gender Diversity (t-1) x Industry Pct Firms with Diversity Policy					40.49** (8.78)					1.45** (0.54)
Gender Diversity (t-1) x Country Laws Supporting Women at Work		12.80** (3.09)		11.46** (3.10)			0.43** (0.13)		0.34** (0.13)	
Gender Diversity (t-1) x Gender Wage Gap	-0.17 (0.57)	-0.06 (0.54)	0.19 (0.56)	0.11 (0.56)	0.35 (0.56)	0.03 (0.02)	0.03 (0.02)	0.04 (0.02)	0.04 (0.02)	0.04 (0.02)
Gender Diversity (t-1) x Female to Male Years of Schooling	-41.16 (61.93)	-27.38 (64.25)	-81.48 (58.02)	-32.95 (61.50)	-95.31 (56.81)	0.87 (3.76)	0.92 (3.98)	-0.70 (3.43)	0.12 (3.59)	-1.11 (3.44)
Gender Diversity (t-1) x GDP per Capita (log)	8.94 (5.68)	0.23 (6.64)	6.76 (5.57)	1.11 (6.79)	7.77 (5.66)	0.35 (0.35)	0.06 (0.38)	0.26 (0.34)	0.13 (0.38)	0.30 (0.34)
Gender Diversity (t-1) x Service Industry	22.57 (12.31)	28.43* (12.92)	10.26 (13.09)	28.28* (13.14)	21.28 (12.66)	0.73 (0.46)	0.94* (0.48)	0.26 (0.49)	0.94 (0.48)	0.68 (0.47)
Gender Diversity (t-1) x Technology Industry	-191.37 (99.96)	-186.26* (92.54)	-203.04* (98.84)	-188.21* (93.24)	-194.64* (98.00)	8.81** (3.06)	8.89** (3.27)	8.32** (3.09)	8.65** (3.19)	8.61** (3.08)
Gender Diversity (t-1) x Industry Gender Segregation	-1.90 (1.74)	-1.62 (1.66)	-1.83 (1.73)	-1.79 (1.65)	-1.42 (1.72)	0.03 (0.10)	0.04 (0.10)	0.03 (0.10)	0.03 (0.09)	0.05 (0.10)
Debt to Equity Ratio (log)	-2.36** (0.29)	-2.34** (0.28)	-2.31** (0.28)	-2.31** (0.29)	-2.27** (0.28)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)
Total Employees (log)	-0.35 (0.20)	-0.32 (0.20)	-0.37 (0.20)	-0.31 (0.20)	-0.35 (0.20)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Employee Turnover (in pct)	1.12* (0.52)	1.12* (0.52)	1.15* (0.52)	1.11* (0.52)	1.12* (0.53)	0.03* (0.01)	0.03* (0.01)	0.03* (0.01)	0.03* (0.01)	0.03* (0.01)
Firm Diversity Policy	-0.64 (0.51)	-0.60 (0.50)	-0.50 (0.50)	-0.48 (0.50)	-0.41 (0.50)	0.03 (0.02)	0.03 (0.02)	0.04 (0.02)	0.04 (0.02)	0.04 (0.02)
Female Pct on Boards	0.25 (2.47)	0.09 (2.47)	0.26 (2.46)	0.12 (2.46)	0.22 (2.45)	-0.15 (0.08)	-0.15 (0.08)	-0.15 (0.08)	-0.15 (0.08)	-0.15 (0.08)
Industry Avg Female Pct on Board	20.13 (21.76)	30.32 (21.71)	-116.65** (41.50)			-0.51 (1.06)	-0.08 (1.06)	-5.79* (2.64)		
Industry Pct Firms with Diversity Policy				-4.19 (2.86)	-21.40** (4.53)				-0.33* (0.13)	-0.95** (0.29)
Return on Assets						0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Constant	-4.35 (26.85)	35.42 (28.55)	17.91 (10.61)	54.85** (14.78)	19.91* (9.82)	-3.36** (1.11)	-2.09 (1.18)	-0.97* (0.45)	1.35* (0.58)	0.26 (0.41)
Observations	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006
R-squared	0.15	0.15	0.15	0.15	0.15	0.42	0.43	0.43	0.43	0.43
Number of firms	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: robust standard errors clustered by firm; ** p<0.01, * p<0.05, p<0.1

Table 6 Predicting Firm Performance, Including Lagged Dependent Variable

Variable	ROA					Tobin's Q				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gender Diversity (t-1)	17.96 (9.54)	-35.73 (35.19)	-30.27* (13.07)	-38.69 (34.08)	-30.62* (12.09)	-0.66 (0.49)	-1.67 (1.70)	-2.10** (0.56)	-3.01 (1.75)	-1.78** (0.54)
Gender Diversity (t-1) x Country Avg Female Pct on Board		140.41 (80.07)					-1.82 (2.58)			
Gender Diversity (t-1) x Industry Avg Female Pct on Board			618.06** (157.76)					19.39** (6.87)		
Gender Diversity (t-1) x Country Pct Firms with Diversity Policy				31.85* (12.39)					1.41* (0.60)	
Gender Diversity (t-1) x Industry Pct Firms with Diversity Policy					80.40** (18.66)					1.72* (0.67)
Gender Diversity (t-1) x Country Laws Supporting Women at Work		5.35 (4.23)		4.76 (4.33)			0.17 (0.20)		0.18 (0.21)	
Debt to Equity Ratio (log)	-2.16** (0.38)	-2.12** (0.38)	-2.08** (0.37)	-2.00** (0.37)	-1.96** (0.37)	-0.02 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.02 (0.01)
Total Employees (log)	-0.03 (0.15)	-0.01 (0.15)	-0.01 (0.14)	0.08 (0.15)	0.04 (0.15)	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Employee Turnover (in pct)	-0.30 (0.55)	-0.29 (0.54)	-0.26 (0.55)	-0.32 (0.54)	-0.24 (0.54)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)
Firm Diversity Policy	-0.71 (0.74)	-0.64 (0.72)	-0.41 (0.70)	-0.41 (0.72)	-0.25 (0.70)	-0.02 (0.04)	-0.02 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.01 (0.04)
Female Pct on Boards	3.97 (2.90)	3.96 (2.88)	4.21 (2.95)	4.16 (2.77)	3.62 (2.74)	-0.27 (0.15)	-0.27 (0.15)	-0.28 (0.15)	-0.25 (0.14)	-0.25 (0.15)
Industry Avg Female Pct on Board	-17.38 (24.13)	-14.66 (24.31)	-258.17** (67.83)			-2.10 (1.15)	-2.00 (1.11)	-9.49** (2.50)		
Industry Pct Firms with Diversity Policy				-4.45 (2.87)	-35.85** (7.43)				0.37** (0.11)	-0.32 (0.29)
Return on Assets						-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Constant	0.30 (10.57)	21.86 (18.76)	26.09** (7.10)	25.58 (18.49)	23.50* (9.38)	0.20 (0.43)	0.62 (0.89)	1.08** (0.23)	0.95 (0.87)	0.48 (0.38)
Observations	3,965	3,965	3,965	3,965	3,965	3,965	3,965	3,965	3,965	3,965
R-squared	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050
Number of firms	629	629	629	629	629	629	629	629	629	629
ROA at t-1	Yes	Yes	Yes	Yes	Yes					
ROA at t-2	Yes	Yes	Yes	Yes	Yes					
ROA at t-3	Yes	Yes	Yes	Yes	Yes					
Tobin's Q at t-1						Yes	Yes	Yes	Yes	Yes
Tobin's Q at t-2						Yes	Yes	Yes	Yes	Yes
Tobin's Q at t-3						Yes	Yes	Yes	Yes	Yes

Note: Arellano–Bover/Blundell–Bond linear dynamic panel-data estimation, with robust standard errors. ** p<0.01, * p<0.05

Table 7 Predicting Firm Performance, Random Effects Models

Variable	ROA					Tobin's Q				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Gender Diversity (t-1)	0.23	-27.33**	-11.99*	-	-	0.19	-0.76	-0.48	-0.96	-0.58
				28.14*	24.16*					
				*	*					
Gender Diversity (t-1) x Country Avg Female Pct on Board	(1.98)	(10.04)	(5.53)	(10.49)	(5.10)	(0.12)	(0.54)	(0.37)	(0.53)	(0.31)
		60.25**					2.10			
		(23.29)					(1.28)			
Gender Diversity (t-1) x Industry Avg Female Pct on Board			150.65*					8.16		
			(64.33)					(4.34)		
Gender Diversity (t-1) x Country Pct Firms with Diversity Policy				15.37*					0.89*	
				(6.81)					(0.35)	
Gender Diversity (t-1) x Industry Pct Firms with Diversity Policy					44.02*					1.37**
					*					(0.51)
					(8.45)					
Gender Diversity (t-1) x Country Laws Supporting Women at Work		3.03*		2.64*			0.10		0.08	
		(1.25)		(1.25)			(0.06)		(0.07)	
Debt to Equity Ratio (log)	-	-1.96**	-1.95**	-1.95**	-1.92**	-0.05**	-0.05**	-0.05**	-0.05**	-0.05**
	1.96**									
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Total Employees (log)	-0.14	-0.11	-0.14	-0.13	-0.15	-0.01*	-0.01*	-0.01*	-0.01*	-0.01*
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Employee Turnover (in pct)	0.85	0.84	0.87*	0.86	0.88*	0.03*	0.03*	0.03*	0.03*	0.03*
	(0.44)	(0.44)	(0.44)	(0.44)	(0.45)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Firm Diversity Policy	0.07	0.11	0.07	0.14	0.26	0.04	0.04	0.04	0.04	0.04
	(0.44)	(0.44)	(0.43)	(0.44)	(0.43)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Female Pct on Boards	1.96	1.80	1.96	1.97	2.08	-0.05	-0.06	-0.05	-0.05	-0.05
	(1.96)	(1.96)	(1.95)	(1.94)	(1.92)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Industry Avg Female Pct on Board	8.04	6.61	-51.01*			-0.20	-0.21	-3.34		
	(9.45)	(9.54)	(25.96)			(0.59)	(0.59)	(1.85)		
Industry Pct Firms with Diversity Policy				1.13	-				0.07	-0.51
					17.50*					
					*					
				(2.22)	(4.08)				(0.12)	(0.27)
Return on Assets						0.01**	0.01**	0.01**	0.01**	0.01**
						(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	16.01*	27.69**	19.39**			0.20	0.60*	0.04		
	*									
	(1.92)	(4.52)	(2.45)			(0.12)	(0.25)	(0.21)		
Observations	5,006	5,006	5,030	5,006	5,006	5,006	5,006	5,006	5,006	5,006
R-squared	1,069	1,069	1,072	1,069	1,069	1,069	1,069	1,069	1,069	1,069
Number of firms	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: robust standard errors clustered by firm; ** p<0.01, * p<0.05, p<0.1

Figure 1 Institutional Legitimacy of Gender Diversity

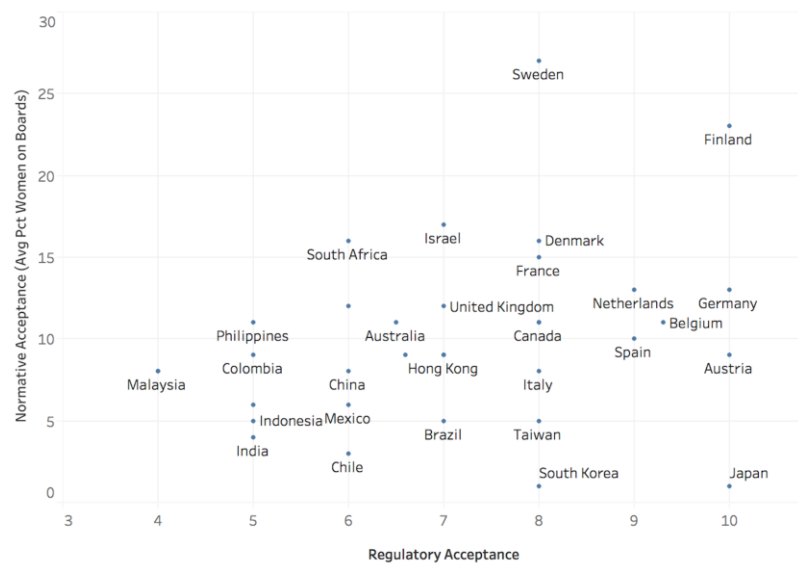
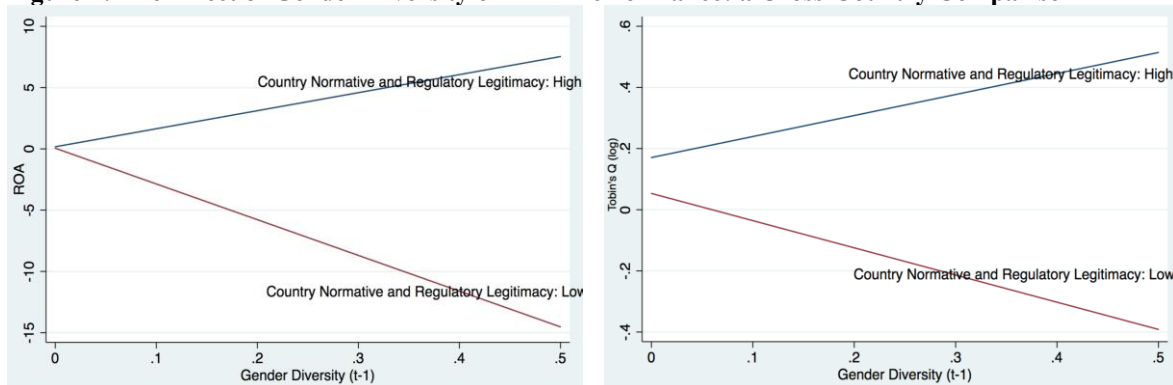
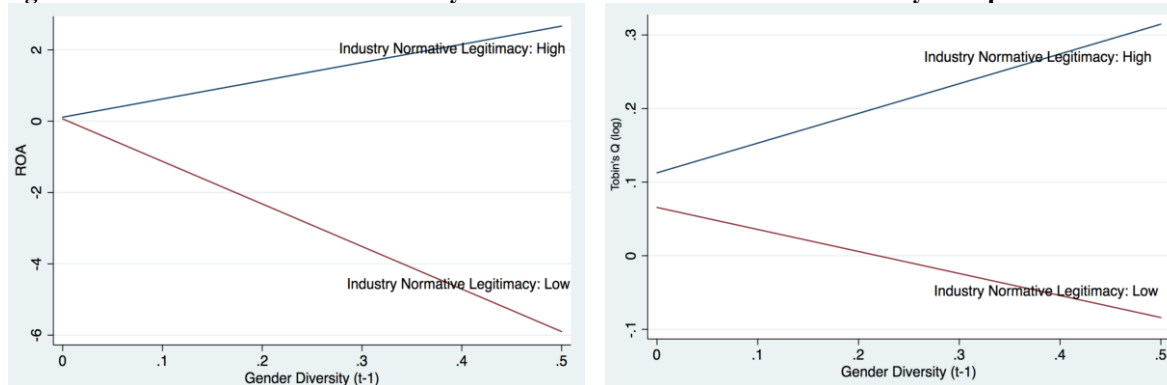


Figure 2: The Effect of Gender Diversity on Firm Performance: a Cross-Country Comparison



Note: High normative legitimacy: one standard deviation above the mean; low normative legitimacy: one standard deviation below the mean.

Figure 3: The Effect of Gender Diversity on Firm Performance: a Cross-Industry Comparison



Note: High normative legitimacy: one standard deviation above the mean; low normative legitimacy: one standard deviation below the mean.

Appendix 1 Constructing the Variable *Country Laws Supporting Women at Work*

Starting in 2010, the World Bank Group publishes biannual reports on over 140 countries documenting the legal environment for women in the workplace (part of the Women, Business, and the Law project). In 2016, it issues a score for each country, based on 16 questions in the report that best reflects its legal conditions for women in the workplace. Since my sample covers the period from 2007 to 2014, I used the 2010 and 2012 reports to construct the score. The 2010 and 2012 reports contain only 11 of the 16 questions. The questions are listed below, each with an *yes* or *no* answer, and a country's index is simply the number of *yes* answers. I used the 2010 report to measure a country's score from 2007 to 2012 and the 2012 report to measure its score from 2013 to 2014.

Questions used to construct *Country Laws Supporting Women at Work*

1. Is there paid leave available to women of at least 14 weeks?
2. Do women receive at least 2/3 of their wages for the first 14 weeks or the duration of the leave if it is shorter?
3. Are the maternity leave benefits paid by the government?
4. Is there paid parental leave?
5. Does the law mandate equal remuneration for work of equal value?
6. Is dismissal of pregnant workers prohibited?
7. Can parents work flexibly?
8. Can women work the same night hours as men?
9. Can women work in jobs deemed hazardous, arduous or morally inappropriate in the same way as men?
10. Are the ages at which men and women can retire with full pension benefits equal?
11. Are the ages at which men and women can retire with partial pension benefits equal?