

12. Project Organising Competitive Session

Women in property and mining organizations: measuring effectiveness of gender equality initiatives

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Representation of women in property and mining: measuring effectiveness of gender equality initiatives.

ABSTRACT

This paper evaluates the effectiveness of gender equality initiatives on women's representation in Australian property development and mining industries. It suggests and tests a positive relationship between gender equality initiatives (human resource, work-life and sex-based harassment prevention initiatives) and women's representation at management, non-management levels and organisational levels, derived from the signaling theory. It also suggests and tests the moderating effect of gender composition of the top management team on the main relationships, derived from the upper echelon theory. Archival Workplace Gender Equality Agency (WGEA) data from 405 organisational reports were used. The findings partially support the proposed hypotheses. Theoretical, research and practical implications are discussed.

Keywords: human capital dimensions of project, temporary organising, equality, women and work, occupational segregation.

BACKGROUND

The Australian organisations remain highly gender segregated by industry and occupation, perpetuating the inequality in the workforce (Blackburn, Browne, Brooks, & Jarman, 2002; WGEA, 2016). Occupational segregation by gender is perceived to be the cause of labor market rigidity and economic inefficiency (Anker, 1997; French & Strachan, 2015) and has implications for women relating to level of earnings and employment opportunity. The Workplace Gender Equality Act 2012 (The Act) encourages implementation of organisational equality initiatives with aim to improve women's representation and to improve productivity and competitiveness of Australian business (WGEA, 2016). However, the question of whether equality initiatives have been effective in doing so has generated an ongoing discussion amongst scholars. Some authors suggest that the implementation of equality initiatives have improved the employment status of women (Ali, 2016; Cockburn, 1991; Still, 1993; Konrad & Linnehan, 1995; Sheridan, 1995), while the empirical studies are scarce (French & Strachan,

2009; 2015). Verbeek (2012, p. 653) and French and Strachan (2007, 2009, 2015) argue that the impact of the equality initiatives on the representation of women in non-traditional work areas and in management is limited. Research to date has been predominantly focused on the causes of gender inequality and few studies have examined the effectiveness of different equality initiatives, with Kalev, Kelly and Dobbin (2006, p. 590) calling organisational initiatives “best guesses”. Previous empirical studies of effectiveness of equality initiatives have suffered from data constraints (Kalev et al, 2006), mostly being derived from limited case studies (Verbeek, 2011), with inconsistent findings (Konrad & Linnehan, 1995; Kalev et al, 2006) and inadequate “sufficient empirical proof” of effectiveness (Verbeek, 2011, p.1944).

In this study, we test the signaling theory (Spence, 1973) and the upper echelon theory (Hambrick & Mason, 1984). Specifically, drawing on the signaling theory, we predict that organisational gender equality initiatives, are positively associated with representation of women at management, non-management and overall in traditionally male intense property and mining organisations (French, 2001). We also predict that this relationship is moderated by the gender composition of the TMT based on the upper echelon theory. This study integrates both theories to predict that the main positive relationship becomes stronger for organisations with higher representation of women in TMT and weaker for organisations with lower representation of women in TMT. Secondly, we also address important research gaps (see Figure 1).

Insert Figure 1 about here

Gender equality in property and mining industries: reviewing the evidence

Women still make up significantly low numbers across all role levels in traditional project-based industry sectors such as property and mining. They continue to be the most male dominated of all the major industry groups despite 30 years of legislation and reforms in recruitment and training (WGEA, 2016). The property industry is the largest industry in Australia and the second largest employer, directly employing 1.17 million full time equivalent (FTE) employees (11.8% of Australian total), generating approximately 28.6% of wages and salaries for Australian workers (AEC Group, 2015). In property, a

high degree of vertical segregation is evident with women comprising only 4.0% of CEOs and 20.0% of key managers, leading to limited opportunities for career progression for women (Blackburn, et al., 2002; French & Strachan, 2015; WGEA, 2016, para 2). Similarly, the mining industry is another major contributor to the Australian economy accounting for 8.5% of GDP and 2.3% of the Australian workforce. Only 15.8% of employees are women and women's distribution within the industry continues to be highly skewed (WGEA, 2016). Most women work in support roles due to a high degree of vertical segregation with only 15.3% holding managerial roles and only 2.7% employed as CEOs (WGEA, 2016).

Gender equality initiatives and women representation

In current study, we use signaling theory to predict the relationship between gender equality initiatives and the level of women representation in organisations. Signaling theory (Spence, 1973) asserts that people (outside the organisation, i.e. job applicants) interpret an organisation's observable actions (external communication, workplace diversity, etc.) as signals of less observable characteristics (values, equality perspectives and commitment, etc.), thereby forming impressions about organisation's intentions (Goldberg & Allen, 2008; Connelly, Certo, Ireland, & Reutzel, 2011). Research suggests that organisations offering a wide selection of equality initiatives send strong signals to their stakeholders that they value and support gender equality, in line with the signaling theory (Celani & Singh, 2011; Spence, 1973). We argue that the existence of equality initiatives such as gender-based HR, work-life and sex-based harassment prevention initiatives signal to female applicants that the organisation cares about gender equality (Ali, 2016; Allen, 2001; Casper & Harris, 2008; Ryan & Kossek, 2008). The HR initiatives such as gender-focused recruitment, retention and promotion initiatives may signal to job applicants that the decisions about hiring and promoting women are monitored (Konrad & Linnehan, 1995) and that wellbeing of women is actively promoted (McKay & Avery, 2006). In addition, the existence of such HR initiatives may suggest that women's contributions, professional development and career progress are important in the organisation (Comer & Soliman, 1996). Further, research suggests that the availability, use and perceived value of work-life initiatives are associated with perceptions of

organisational support (Casper & Harris, 2008). By signaling support for work–life initiatives, such as employer funded parental leave and support with caring responsibilities and flexible working arrangements, organisations influence perceptions of job applicants (Casper & Harris, 2008) encouraging more women applicants to respond. In addition, the existence of sex-based harassment prevention initiatives signal organisational commitment to maintaining a safe work environment, full access to benefits and an environment free from discrimination. Thus, we argue that gender equality initiatives draw more women to apply for roles with an organisation and increase their likelihood of accepting job offers, leading to increased representation of women (Ali, 2016; Celani & Singh, 2011).

Further, the past research supports the proposition that gender equality initiatives lead to a higher representation of women in the workforce. Ali (2016) found that gender-focused initiatives signal to job applicants that the organisation values and supports gender diversity what leads to greater likelihood of them applying and accepting employment and therefore improved representation of women. Thus, drawing on the signaling theory, our study predicts that:

Hypothesis 1a: Gender equality initiatives are positively associated with women’s representation at management level.

Hypothesis 1b: Gender equality initiatives are positively associated with women’s representation at non-management level.

Hypothesis 1c: Gender equality initiatives are positively associated with women’s representation at organisational level.

Moderating effect of TMT’s gender composition

Our study draws on the upper echelon framework (Hambrick & Mason, 1984) and the signaling theory (Spence, 1973) to explore the impact of gender composition of TMT on women representation in organisations. The upper echelon theory suggests that a firm’s behavior and performance are functions of its TMT, which makes most of the organisation’s strategic and organisational decisions (Hambrick & Mason, 1984; Carpenter, Geletkanycz, & Sanders, 2004). Research suggests that the presence of women on the corporate board signals that the organisation embraces equality in employment (Bilimoria, 2006;

Broome & Krawiec, 2008; Daily & Dalton, 2003). Given that the members of TMT are more likely than board members to have been recruited from within the organisation, we argue that higher women representation in TMT sends even stronger signal. Joy (2008, p.8) suggests that women leaders signify “employers of choice” to women looking for “best places to work”. Yang and Konrad (2011) suggest that the employment of a diverse set of individuals in highly visible key jobs enhances the organisation’s reputation for managing equality and diversity. This higher number of equality initiatives together with higher numbers of women in TMT send a strong signal to potential female job applicants of company’s commitment to equality. Job applicants for both management and non-management positions receive this signal (Breaugh & Starke, 2000) increasing their likelihood of applying and accepting job offers and therefore increasing representation of women in those organisations.

In contrast, low representation of women in TMT weakens the credibility of the equality initiatives’ signals. The low representation of women in TMT may signal to women the existence of stereotype-based role expectations (Elsass & Graves, 1997), lack of cohesion (Triandis, Kurowski, & Gelfand, 1994) and cooperation (Chatman & Flynn, 2001), and increased conflict (Pelled, 1996) in these organisations. Such signals may lead to job applicants’ perceptions of lack of inclusive workplace (Allen, 2001; Joy, 2008; Ryan & Kossek, 2008), decreasing applicants’ likelihood of applying for and accepting job offers and therefore decreasing representation of women in the organisation. Therefore, we expected to observe that:

Hypothesis 2a: Representation of women in TMT will moderate the relationship between gender equality initiatives and women representation in management. Such that the main positive relationship becomes stronger for organisations with higher representation of women in TMT and weaker for organisations with lower representation of women in TMT.

Hypothesis 2b: Representation of women in TMT will moderate the relationship between gender equality initiatives and women representation in non-management. Such that the main positive relationship becomes stronger for organisations with higher representation of women in TMT and weaker for organisations with lower representation of women in TMT.

Hypothesis 2c: Representation of women in TMT will moderate the relationship between gender equality initiatives and women representation at organisational level. Such that the main positive relationship becomes stronger for organisations with higher representation of women in TMT and weaker for organisations with lower representation of women in TMT.

METHODS

This study uses a time-lagged research design. The aim of this study is to test the effectiveness of gender equality initiatives on women representation in Australian property and mining organisations.

Sample and Data Collection

The population of this research comprises of Australian project-based and male dominated property and mining organisations that reported on gender equality initiatives to WGEA in 2013/14 and 2014/15 periods. Data on equality initiatives for 2013/14 were matched with data on women representation for 2014/15. The final sample of 405 organisations was diverse in terms of size and industry, and demonstrated a range of equality initiatives, as well as, women's representation at different role levels. The sample organisations ranged in size from 9 to 13,729 employees (mean=800). Mining represented 142 organisations (35% of total sample); and property made up of construction and engineering organisations represented 263 organisations (65%). Women's representation in the sampled organisations ranged from 0% to 69% (mean=18%).

Measures

Predictors

The study focused on gender equality initiatives across: 1) gender-based HR initiatives; 2) work-life initiatives; and 3) sex-based harassment prevention initiatives. Gender-based HR initiatives related to policies and strategies that specifically support gender equality. They were measured using six items with Cronbach's alpha reliability of 0.83. Work-life initiatives related to formal policies and strategies for flexible working arrangement as well as policies, strategies and measures to support employees with family and caring responsibilities. They were measured using five items with Cronbach's alpha s

reliability of 0.73. The sex-based harassment prevention initiatives were measured using two items. The Cronbach's alpha showed the two items scale with a reliability of .18.

Outcomes

Women's representation was measured at management, non-management and organisational levels and calculated as a percentage of number of women and number of all employees at each category.

Controls

The analyses controlled for the effects of organisation size and industry type on women representation at every level. Organisational size has been considered as a significant predictor of the employment status of women (Konrad & Linnehan, 1995; French, 2001). Consistent with previous research, organisation size was operationalized as the total number of employees (Alexander, Nuchols, Bloom, & Lee, 1995; Jackson, Schuler, & Rivero, 1989). There are industry differences in regards to the impact of organisational initiatives on gender equality (Blum, Fields, & Goodman, 1994; Datta, Guthrie, & Wright, 2005). The eight ANZSIC industry sub-groups of the sample organisations were categorized into mining and property. The property industry includes organisations involved in developing, operating and facilitating activities within the property industry (AEC Group, 2015).

Moderator

Hambrick and Mason (1984) advocated viewing top managers as a team (i.e., the TMT) and researchers using this approach have found positive relationships between TMT demographic indicators and organisational outcomes (Child, 1972; Hambrick & Mason, 1984; Welbourne, Cychota & Ferrante, 2007). Women's representation in the TMT was calculated as a percentage of women in the TMT (Bao, Fainshmidt, Nair & Vacheva, 2014; Welbourne et al., 2007). The mean of women in the TMT is 9.43% with a standard deviation of 14.58%.

RESULTS

Table 1 presents the means, standard deviations, and correlation coefficients for all variables. Multicollinearity is not an issue due to low correlations among controls and predictor variables.

Insert Table 1 about here

We used linear multiple regression to test the two hypotheses. The results shown in Table 2 indicate that only work-life initiatives had a significant positive effect on representation of women in management roles ($\beta = .11, p < .05$). The results shown in Table 3 indicate that work-life initiatives also had a significant positive effect on representation of women in non-management roles ($\beta = .23, p < .001$). Further, the results shown in Table 4 indicate that work-life initiatives had a significant positive effect on representation of women in organisation overall ($\beta = .23, p < .001$). The results suggest that Hypothesis 1 was partially supported: only work-life initiatives had a significant positive effect on women representation across all role levels.

Insert Table 2, Table 3 and Table 4 about here

Hypothesis 2 involves a linear moderating effect (TMT) on a linear relationship between gender equality initiatives and women representation. The predictor variables of gender equality initiatives and the moderating variable of TMT were centered to reduce multicollinearity with the interaction terms (Aiken & West, 1991). The results shown under Model 4 in Table 2 indicate that the interaction terms accounted for an additional 4% of variance in women representation in management with HR initiatives x TMT showing a significant positive effect ($\beta = .23, p < .05$).

We plotted the effects of low and high levels of women in the TMT on the relationship between gender-based HR initiatives and the representation of women at management level. Figure 2 illustrates separate regression lines for organisations with few women in the TMT and for organisations with high number of women in the TMT. The relationship between gender-based HR initiatives and the representation of women at management level was positive and significant for organisations with higher number of women in the TMT ($\beta = 0.66, p < 0.05$).

Insert Figure 2 about here

The results suggest that Hypothesis 2a was partially supported: higher number of women in the TMT had a significant positive effect on relationship between gender-based HR initiatives and representation of women at management level.

DISCUSSION & CONCLUSION

The main objective of testing the relationship between gender equality initiatives and women's representation in organisations at management, non-management and overall was to test the effectiveness of those initiatives in improving the representation of women in Australian property and mining industries. The objective of testing the moderating effect of gender composition of TMT on the main relationship was to test whether the main positive relationship becomes stronger for higher representation of women in TMT and weaker for lower representation of women in TMT at all role levels. The findings of this study provide some evidence for these relationships.

Work-life initiatives and representation of women

We found support for a positive relationship between work-life initiatives and the representation of women at management, non-management and organisational levels in property and mining organisations. While French and Strachan (2013, p16) found a significant proactivity in the implementation of work-life initiatives but with lack of impact on representation of women, we found support for this relationship in those project-based industries. This study provides pioneering evidence for this relationship as no prior research has tested the effectiveness and impact of work-life initiatives on representation of women in those industries. The findings suggest that work-life initiatives signal to job applicants that the organisation values and supports gender equality and offers flexible work arrangements to support women with family and caring responsibilities (French & Strachan, 2013). This can lead to greater organisational attractiveness and higher likelihood of job applicants applying and accepting the employment with the organisation (Ali, 2016). We interpret these findings to suggest that while some property and mining organisations may put these initiatives in place due to institutional

pressures (Yang & Konrad, 2011; French & Strachan, 2013), they signal their intentions to improve diversity in their workplaces (Edelman, 1992) and achieve an increased representation of women.

The different findings pertaining to impact of gender-based HR initiatives and sex-based harassment prevention initiatives on women's representation can be explained by the different effectiveness of the signals (Connelly et al., 2011; Gupta, Govindarajan, & Malhotra, 1999). The signal may be misinterpreted about the unobservable characteristics of the sender and therefore organisation's intentions misunderstood by the receivers (Goldberg & Allen, 2008; Connelly, et al., 2011).

Gender-based HR initiatives, TMT and representation of women

The results of this study also provide pioneering evidence that gender-based HR initiatives interact with TMT to positively affect representation of women in management as no prior research has tested the effectiveness and impact of gender-based HR initiatives on representation of women in those industries. Specifically, more gender-based HR initiatives lead to higher representation of women in management with high levels of women in TMT. These findings support signaling theory and the upper echelon theory (Spence, 1973; Hambrick & Mason, 1984). They suggest that many HR initiatives are functions of more women in TMT, signaling that the organisation is committed to the advancement of women, it values and supports gender equality and it represents 'employer of choice' (Ali, 2016; Joy, 2008; Celani & Singh, 2011).

Theoretical contribution and research implications

The study's results have several theoretical and research implications. The findings support signaling theory for management, non-management and overall (Spence, 1973). The findings related to the positive impact of work-life initiatives on women's representation across all organisational levels strengthen the signaling argument that the observable actions (work-life initiatives) form unobservable perceptions (the organisation values gender equality and flexible working arrangements, and supports employees with family and caring responsibilities). The support found across all organisational levels

indicates the strength of this signal because the implementation of such initiatives is low in those industries (French & Strachan, 2013, WGEA, 2016). This research supports Ali's (2016) claim that testable predictions can be derived from signaling theory. In addition, the results support the integration of the signaling theory with the upper echelon theory to propose the process through which gender equality initiatives affect representation of women (Hambrick & Mason, 1984; Spence, 1973). The support found for the gender-based HR initiatives-women representation with TMT relationship at management level strengthens the argument that signaling theory can be used in various context and with other theories (Ali, 2016, Karasek & Bryant, 2012). The finding also strengthens the argument that higher representation of women in TMT together with higher number of gender-based HR initiatives send a strong signal to potential female job applicants for management roles about organisation's commitment to gender equality (Ali, 2016; Celani & Singh, 2011, Joy, 2008).

Further, the study addresses important research gaps in the field of gender equality and women representation in male dominated, project-based organisations within studied industries and provides future research directions. This research might be the first study providing empirical evidence on the effectiveness of gender equality initiatives on women representation in non-traditional work areas (Verbeek, 2011; French & Strachan, 2015). Grounded on recent and reliable archival data from 405 Australian organisations, the study also addresses criticism regarding the lack of rigor in studies investigating effectiveness of equality initiatives (Kalev et al., 2006; Verbeek, 2011), and provides empirical evidence to what Kalev, Kelly and Dobbin (2006, p. 590) called "best guesses". Further, the results of this research provide pioneering evidence for the positive effects of HR initiatives on women representation in management via high representation of women in TMT, addressing lack of research in this area (Klettner, Clarke, & Boersma 2016). It also demonstrates that a gender-diverse TMT creates a gender-diverse management teams through trickle down effects (Ali & Konrad, 2017; Gould, Kulik, & Sardeshmukh, 2014).

Future research could benefit from studying how such demographic composition of TMT may influence the leadership's focus on implementation of gender-based HR initiatives and other gender equality programs (French & Strachan, 2013).

Practical implications

This study has several important industry implications. Firstly, the findings related to the effectiveness of work-life initiatives on representation of women across all organisational levels provide a solution for addressing the workplace horizontal and vertical segregation issue in male dominated industries. Provision of effective work-life initiatives can reduce costs associated with implementation while improving the representation outcomes. Secondly, as Australian property and mining organisations need to greatly improve women representation at the managerial level (Strachan, French, & Burgess, 2010, WGEA, 2016), the offering of work-life initiatives studied in this research can help organisations to achieve increased representation for management role levels, as well as non-management and overall. Thirdly, the results inform organisations that the effectiveness of gender-based HR initiatives on women representation is moderated by more women in TMT. The gender diverse TMT enables organisations to attract more women to management roles leading to reduction of vertical segregation by gender in those organisations and therefore contributing to improvement of organisational productivity and competitiveness (Anker 1997; French & Strachan, 2015; WGEA, 2016).

Limitations

The findings provide only indirect support for signaling theory and upper echelon theory. A direct test of the upper echelon theory would involve measuring how the experiences, values and personalities of TMT members influence their decision making (Hambrick, 2007). This research is conducted at the organisational level instead. In addition, the study could not control for the effects of other demographic forms of diversity such as ethnicity and age that may interact with gender equality initiatives and impact their effectiveness on representation of women. Moreover, we also could not control for the effects of how well the work-life and gender-based HR initiatives were implemented.

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Figure 1: Proposed model of effectiveness of gender equality initiatives on representation of women.

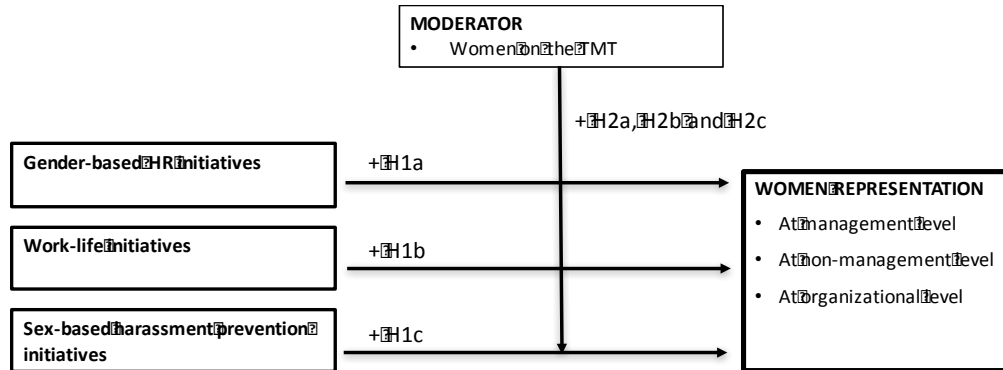


Table 1: Means, Standard Deviations, and Correlations^a

Variable	Mean	SD	1	2	3	4	5	6
Controls								
1. Organisation size	800.10	1439.82						
2. Industry type (0 = Property; 1 = Mining)	1.65	.47	.08*					
Predictors								
3. Gender-based HR initiatives	4.84	3.05	.13*	-.03				
4. Work-life initiatives	2.75	2.291	.31**	.07	.39**			
5. Sex-based harassment prevention initiatives	3.46	.91	.11*	.02	.26**	.14*		
Moderator								
6. Women in the TMT	9.43	14.58	-.00	-.03	.00	.11*	.01	
Outcomes								
7. At management level	13.21	12.61	-.03	-.01	.05	.09*	-.07	.08
8. At non-management level	19.91	13.42	-.08*	-.11*	.04	.17**	-.01	.06
9. At organisational level	18.17	11.26	-.07	-.11	.04	.17**	-.00	.10

^a 2-tailed; * $p < .05$, ** $p < .01$

Table 2: Hierarchical Regression Analyses – Women’s Representation at management level

Variable	Gender equality initiatives predicting women’s representation at management level		
	Hypothesis 1		
	β (Model 1) ^a	β (Model 2)	β (Model 3)
Controls			
Organization size	-.03	-.06	-.06
Industry type	-.01	-.01	-.01
Predictors			
Gender-based HR initiatives		.04	.04
Work-life initiatives		.11*	.10
Sex-based harassment initiatives		-.09	-.09
Moderator			
Women on the TMT			.07
Interaction terms			
Gender-based HR initiatives x women on the TMT			
Work-life initiatives x women on the TMT			
Sex-based harassment prevention initiatives x women on the TMT			
R^2	.00	.02	.02
F	.21	2.65*	1.76
ΔR^2	.00	.02	.00
F for ΔR^2			

^a $n = 405$

^b Standardized coefficients are reported

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3: Hierarchical Regression Analyses – Women’s Representation at non-management level

Variable	Gender equality initiatives predicting women’s representation at non- management level			
	Hypothesis 1			Hypothesis 2
	β (Model 1) ^b	β (Model 2)	β (Model 3)	β (Model 4)
Controls				
Organization size	-.07	-.14*	-.14*	-.14*
Industry type	-.10	-.12*	-.11*	-.12*
Predictors				
Gender-based HR initiatives		-.03	-.03	-.03
Work-life initiatives		.23***	.22***	.24***
Sex-based harassment prevention		.00	.00	.00
Moderator				
Women in the TMT			.03	.04
Interaction terms				
Gender-based HR initiatives x women				.05
Work-life initiatives x women in the				-.08
Sex-based harassment prevention				-.07
R^2	.02	.06	.06	.07
F	3.56*	6.19***	.43	1.47
ΔR^2	.02	.04	.00	.01
F for ΔR^2				

^a $n = 405$

^b Standardized coefficients are reported

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4: Hierarchical Regression Analyses – Women’s Representation at organisational level

Variable	Gender equality initiatives predicting women’s representation at organisational level			
	Hypothesis 1			Hypothesis 2
	β (Model 1) ^b	β (Model 2)	β (Model 3)	β (Model 4)
Controls				
Organization size	-.06	-.13*	-.12*	-.12*
Industry type	-.10*	-.12*	-.11*	-.12*
Predictors				
Gender-based HR initiatives		-.03	-.03	-.03
Work-life initiatives		.23***	.22***	.24***
Sex-based harassment prevention		.01	.01	.01
Moderator				
Women in the TMT			.07	.08
Interaction terms				
Gender-based HR initiatives x				.07
Work-life initiatives x women on the				-.09
Sex-based harassment prevention				-.09
R^2	.02	.06	.06	.08
F	3.29*	6.16***	1.90	2.09
ΔR^2	.02	.04	.00	.01
F for ΔR^2				

^a $n = 405$

^b Standardized coefficients are reported

* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 2: Moderating effect of gender-based HR initiatives on women's representation at management level

