



AMERICAN ASSOCIATION OF WINE ECONOMISTS

AAWE WORKING PAPER

No. 154

Business

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Wine Industry**

Jeremy Galbreath

May 2014
ISSN 2166-9112

www.wine-economics.org

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Jeremy Galbreath
Curtin Graduate School of Business
Curtin University
78 Murray Street
Perth 6000
Western Australia
+61 8 9266-3568 (v)
+61 8 9266-3368 (f)
jeremy.galbreath@gsb.curtin.edu.au

ABSTRACT

Gender diversity in the workplace is considered both an economic and ethical imperative and as such has garnered substantial research attention. To advance the literature, this study analyzes firm-level predictors of women in top management roles across all wine producers in Australia between 2007 and 2013. In the main, firm size reduces the likelihood of women representation in top roles, as predicted. Firms with strong environmental sustainability credentials are more likely to have higher levels of women's representation in top roles, including in CEO and marketer roles, supporting our hypothesis. However, contrary to the prediction, high export orientations within firms were found to negatively impact women's representation in top roles; namely, women in the CEO and winemaker roles. The findings are discussed and future research directions put forth.

Keywords:

Australia, diversity, gender, glass ceiling, women, wine

INTRODUCTION

To what extent are women advancing to top roles in business? This is an important academic and practical research question given that gender diversity in the workplace is considered both an economic and ethical imperative (Curtis, Schmid, & Struber, 2012; Devillard, Graven, Lawson, Paradise, & Sancier-Sultan, 2012; Kelan, 2008; McCabe, Ingram, & Dato-on, 2006). Within the management discipline, most research on gender diversity has examined one of two distinct areas: 1) the overall representation of women in upper echelon positions, or 2) the affect that women in these top roles have on firm outcomes (Adams & Ferreira, 2009; Bear, Rahman, & Post, 2010; Oakley, 2000; Torchia, Calabrò, & Huse, 2011). In each area of study, the findings have been mixed. For example, in some countries (e.g., Belgium, France, Norway), governments have set quotas for women's representation in CEO and board of director roles, while in other countries women have made little or no progress in such roles (Blackrock Investment Management, 2012; Teigen, 2012).¹ Alternatively, Bear et al. (2010) find that women on boards have a positive effect on corporate social responsibility (CSR), whereas Adams and Ferreira (2009) find that women on boards have a negative impact on firm performance.

While having improved our understanding of women in the workforce and particularly in upper echelon roles, the contributions of prior research are limited in three ways. First, current research tends to focus on supra-elite roles, such as board of director seats. What remains to be better understood is the extent of the representation of women in a broader context. For example, in the wine industry, the focus of this study, investigating other important roles can provide new insight. Second, most evidence about women in top roles is drawn from the very largest, publicly

¹ Note that the country of this study, Australia, does not have mandated gender quotas for board of director seats or CEO positions.

traded firms (e.g., Fortune 500, FTSE 100). This limits insights into a very select few companies. Further, levels of the representation of women are typically given as averages, which are based on a range of industries. Such figures do not, however, isolate on the fact that more women tend to be employed in particular industries than in others (Hillman, Shropshire, & Cannella, 2007). Lastly, most previous research treats women in top roles as exogenous (Hillman et al., 2007; Nekhili & Gatfaoui, 2013), rather than investigating whether or not firm characteristics help explain why women advance. Studying the traits and characteristics of women may offer insight into why women can reach top roles, but it does little to explain how such traits and characteristics either help or hinder advancement based on differences in firm-level characteristics.

To address these limitations, this study examines the wine industry. Wine as a product is one of the oldest in the world (estimated to be at least eight thousand years old) and is culturally significant around the globe. The wine industry consists of a range of size of producers, which provides a good contrast to most published studies on gender diversity in the business stream. Specifically, this paper relies on a unique database that tracks gender across a broad cross-section of important roles in the wine industry, including senior management and production and marketing roles, both of which are critical in this industry.

This paper makes three contributions to the literature. First, despite its very long history and cultural significance, little is known about the role of women in the wine industry. This is the first known large-scale study to examine women in top roles in the wine industry and it thus broadens the context for understanding the gender diversity issue. Second, though this study considers the prominent role of the winemaker, it also attends to other key roles in the industry, including the CEO, viticulturist, and marketer roles. Thus it offers important insight into the representation of women in previously under-examined leadership positions, and what might

predict their appointment to these positions. Lastly, the study has practical implications. In Australia, the setting of this study, women employed full-time in all agriculture industries (including wine production) are estimated to be around 14 percent only (WGGEA, 2012). This paper could inform future policy in the area of rural and regional employment for women.

BACKGROUND AND THEORETICAL FRAMEWORK

The advantages of women: A resource-based perspective

The issue of gender diversity in business organizations has become prominent in both academia and the popular press, and has been described as an economic imperative that is important to strategic success and economic competitiveness (Curtis et al., 2012; Devillard et al., 2012) and an ethical imperative that signals an awareness of and commitment to social responsiveness (Kelan, 2008; McCabe et al., 2006). Of the many theories used in the literature to examine the value that women can contribute to organizations, one key framework is the resource-based view of the firm (RBV) (Barney, 1991; Galbreath, 2005).

The RBV posits that firms are bundles of resources that can achieve competitive advantage, providing these bundles of resources are unique or difficult to duplicate. Barney (1991) argues that human capital resources are among the most unique and difficult to imitate. However, some scholars suggest that many firms have not capitalised effectively on their human capital resources (Katzenbach et al., 1995). Examples of underutilised human capital resources include women and groups such as those of diverse racial or ethnic backgrounds, who might bring different resources to firms. In the case of women, there many reasons why the resources they possess are expected to contribute value to firms.

First, women are known to be more orientated to supporting and maintaining relationships than men (Hisrich & Brush, 1994; Rosener, 1995), which is important to managing the many stakeholders who risk their financial and other (e.g., time, skills, social capital)

investments in the firm. Second, evidence suggests that women are strong in areas such as new idea generation and innovation (Miller & Triana, 2009; Rosener, 1995), which are thought to be critical to competitive advantage. Third, women appear to be good at seeing big picture issues, which aids them in developing high quality strategies (Kalleberg & Leicht, 1991). Fourth, women who rise through the ranks may bring unique connections to external sources of dependency, such as key stakeholder groups (e.g., consumers) (Brennan & McCafferty, 1997; Daily, Certo, & Dalton, 1999). Fifth, women demonstrate higher sensitivity and concern with respect to the natural environment, which, when they are in top roles in firms, positively impact on firms' sustainability performance (Bear et al., 2010). Sixth, and in a more context specific example, women have been found to have greater sensory perception (Korneliusson, 2012), which, from a winemaking perspective, appears to afford them the ability to produce higher quality wine than men (Gilbert & Gilbert, 2012). In short, given these traits and capabilities, as women take up leadership positions in firms, the human capital resources they provide are expected to improve organizational learning, productivity, quality, morale, and performance (Rosener, 1995).

Top leadership roles

Hambrick and Mason (1984) were among the first to focus theoretical attention on firms' top managers, the so-called upper echelon roles. Their main emphasis was on strategic choice, and the influence that top managers have on strategic choices. To examine this relationship, Hambrick and Mason (1984) emphasized observable managerial characteristics. These included age, functional backgrounds (e.g., accounting, marketing, sales), education, socioeconomic background, financial position, and heterogeneity of the managerial group. Their original theory was later refined, introducing the role of managerial discretion and job demands (Hambrick & Finkelstein, 1987; Hambrick, Finkelstein, & Mooney, 2005), which were hypothesized to have

moderating influences on the relationship between their original upper echelon predictions and strategic choice.

Although it is not discussed in detail, the focus of the work of Hambrick and Mason (1984) is on top management roles in *large* firms. Further, while the Chief Executive Officer (CEO) role is mentioned several times, with minor reference to financial and operations executives, there is no explicit definition of what constitutes a “top” management role. Certainly, in large firms, top management positions such as CEO, chief financial officer (CFO), chief operating officer (COO), and chief information officer (CIO), among others, are common. However, top management roles can vary across firms and industries, as well as depending upon what defines a top role. For example, in the context of this study, the wine industry, the winemaker or marketing role are considered top roles, in addition to the CEO role. This is particularly heightened for smaller firms, which constitute the majority of the wine industry, where above-average success could be strongly influenced by whether or not a firm has a marketing role, for example (Galbreath, 2014).² Hence, this study assumes that top roles are contextually determined: what defines a top role can vary from firm to firm and from industry to industry.

HYPOTHESES

Following the RBV, if women are expected to contribute to firms in a variety of ways through their embedded resources, capabilities, and traits (i.e., human capital) what firm characteristics positively (or negatively) affect their representation in top roles? Hillman et al. (2007) and Nekhili and Gatfaoui (2013) argue that this is an understudied aspect in gender

² For example, in a very small winery, the key roles could consist of a CEO or managing director, a vineyard manager, a winemaker, and a sales or marketing person. In principle, this comprises the “executive” team and each role would be considered a “top” role.

diversity research, and this paper seeks to advance the literature by concentrating on three key dimensions: 1) firm size; 2) environmental credentials; and 3) export orientation. Firm size is chosen because while women possess useful and productive resources, organizational and social identity barriers might actually restrict their movement or appointment to higher ranking roles in firms. Environmental sustainability is chosen because women are expected to demonstrate greater sensitivity to environmental concerns than men. On the other hand, exporting is a strategy that relies on the building of relationships, of which women appear to be particularly adept at.

Firm size

Hillman et al. (2007) argue that large, publicly-traded firms face high levels of institutional pressure to demonstrate gender diversity, particularly at the board of director level. Their findings, across several industries and looking exclusively at gender diversity in directorship seats, does suggest that firm size (measured by sales revenue) is positively related to the number of women on corporate boards in the United States. However, boards of directors are a highly specialised, elite, atypical group that might not reflect the experiences of women in other top roles. Hence, there is a counterargument that large firms can create obstacles for employee advancement to top roles, especially for women.

Large firms, for example, can be bureaucratic and rigid (Blau & Meyer, 1987), and tend to face intense competition that can lead to norms and expectations around heavy employee workloads as a means of demonstrating loyalty and commitment. Advancing through the ranks in large firms, or obtaining top jobs in these firms from the outside, is typically highly competitive. This can potentially be problematic with respect to women as evidence suggests that the embedded traits of women generally result in them being less competitive than men (Gneezy, Niederle, & Rustichini, 2003; Hogarth, Karelaia, & Trujillo, 2012), and that they may avoid or withdraw from environments that are too competitive (Niederle, Segal, & Vesterlund, 2008).

Given the work commitments generally expected by large firms, particularly in higher ranking roles, women can also be disadvantaged. This is because women appear to prioritize family over work and seek more balanced lifestyles in preference to career progression as a sole priority (Sanders, Hrdlicka, Hellicar, Cottrell, & Knox, 2011). Hence, larger firms are more likely to view such gender attributes and traits as unfavorable, making advancement into top roles more difficult for women, regardless of any positive human capital resources they possess.

Large firms also tend to have a detailed occupational division of labor that can, whether wittingly or unwittingly, divide “men’s” from “women’s” work (Baron & Bielby, 1985), although this may be lessening over time, given that women represent 50 percent of the current managerial workforce (Prime, Carter, & Welbourne, 2009). However, evidence suggests that gender divisions of labor can still exist, particularly in top roles. For example, in Australia, a recent study identified that in the ASX500 (the largest 500 firms in Australia) around three percent of CEOs are women (WGFA, 2012). Similarly, in the UK, three percent of CEOs in the FTSE350 were found to be women (HRReview, 2013). In the US, the percentage of women CEOs in the Fortune 500 is 4.4 percent (Catalyst, 2014), slightly higher than the figures in Australia and the UK. Unlike any of the above countries, Germany’s major DAX 30 index does not boast a single woman CEO (Marcus Evans, 2013).

The above statistics, in part, are thought to reflect gender stereotypes that women encounter as they attempt to advance to top roles. Specifically, women are perceived to lack the endowed resources or prerequisite traits for top roles (Adams & Funk, 2012; Fullager, Sumer, Sverke, & Slick, 2003; Schein, 2001; Schein Mueller, Lituchy, & Liu, 1996). Empathy and the caretaker traits of women—as opposed to traits of men, such as task-orientation, delegation and the influencing upward trait—create a high risk of bias and discrimination in the workplace for women (Heilman, Wallen, Fuchs, & Tamkins, 2004). If larger firms tend to have roles that are

defined more by sex, such that men are more likely to attain and persist in top roles (as noted in the above statistics, for example), then the effect of gender stereotyping is more likely to be present, making advancement for women more difficult. There is evidence to suggest that this is the case in the wine industry (Bryant & Garnham, 2014), the industry studied in this paper. Thus:

Hypothesis 1: Firm size is negatively associated with the representation of women in top roles.

Environmental sustainability credentials

Environmental sustainability is increasingly important to many firms (Kiron, Kruschwitz, Rubel, Reeves, & Fuisz-Kehrbach, 2013). This is because economic opportunities, legislation, and stakeholder pressures are influencing business decisions with respect to sustaining the natural environment (Bansal & Roth, 2000; Kiron et al., 2013). Firms that pursue environmental sustainability need to be innovative, they need to demonstrate skills around stakeholder engagement and management, and they need to demonstrate ethical behavior.

Innovation is important because environmental strategies require new technology and technical systems and processes (Bansal, 2005). Further, Shrivastava and Hart (1995) argue that environmental sustainability requires far-reaching changes in business processes and organizational strategies, and such changes require innovative approaches. This is supported by Siebenhüner and Arnold (2007), who suggest that the demonstration of environmental sustainability may require the reinvention of products, the complete re-engineering of existing corporate processes, the need to integrate new sets of data into existing control systems, to revise internal and external communication strategies, and to transform basic values and knowledge systems. Such transformations are unlikely to be met by applying ready-made concepts or by attempting to implement conventional strategies in new contexts. In short, innovation is required (Berrone, Fosfuri, Gelabert, & Gomez-Mejia, 2013; Nidumolu, Prahalad, & Rangaswami, 2009).

As for stakeholder engagement and ethical considerations, firms face considerable pressure to demonstrate responsibility towards the natural environment (Murillo-Luna, Garcés-Ayerbe, & Rivera-Torres, 2008). This pressure comes from sources such as communities, customers, governments, the media, NGOs and regulatory bodies among others (Buysse & Verbeke, 2003; Haigh & Griffiths, 2009; Henriques & Sadosky, 1999), and it is manifested in several ways. First, firms have a moral obligation to treat the natural environment as a stakeholder (Starik, 1995). This is because they *depend* on the natural environment. Virtually all business activity depends on the resource and economic inputs the natural environment provides (Dyllick & Hockerts, 2002). If the resources and inputs nature provides are disrupted, run out, or are otherwise put at risk (e.g., through climate change), economic activity could be constrained (Stern, 2006). Firms' dependence on natural resources to produce goods and services suggests there is an environmental ethic of the stewardship of resources and an obligation to respect non-human nature's bounty and limits. Second, following Carroll (1979), there is a legal requirement to respond to the natural environment. This is evident in laws such as the *Endangered Species Act* and the *National Environmental Policy Act* in the US, and in similar laws in other countries. Third, Haigh and Griffiths (2009) suggest that, following Freeman's (1984) definition of a stakeholder, the natural environment can affect, or can be affected by, business activity. For example, industrial disasters have affected the natural environment (Stead & Stead, 2000). On the other hand, scholars argue that extreme weather events as a result of climate change have "the potential to significantly affect business" (Kolk & Pinske, 2007: 371). Hence, various stakeholders place pressure upon firms to act responsibly towards the natural environment, and to adapt to the changes in natural systems that can impact on business activities and operations.

As for how women in upper management roles affect innovation, stakeholder engagement and ethical actions, first, from a gender perspective, evidence suggests that women

are very innovative. Torchia et al. (2011) find that women leaders are linked to firm-level innovation, including product and process innovations. Similarly, Miller and Triana (2009) find that women in top roles have a positive effect on innovation; namely, R&D expenditures. In addition, there is evidence demonstrating that women express more concern about the natural environment than men (Davidson & Haan, 2012; McCright, 2010), particularly where health and safety are concerned. This is likely due to women demonstrating characteristics of empathy and concern about the well-being of others (Learned, 2011; McCright, 2010; Wood & Eagly, 2009). From a stakeholder perspective, women's concern about the well-being of others is important as meeting various stakeholders' demands requires the ability to look beyond one's own narrow self-interest. Finally, evidence suggests that women's moral orientation and ethical standards are higher than men's and that women are more likely than men to provide oversight of ethical conduct in the firms they serve (Betz, O'Connell, & Shepard, 1989; Brown & Brown, 2001). According to McCright (2010) and Learned (2011), higher levels of representation of women result in their values having greater influence, which, in turn, leads to greater concern for the natural environment than men.

Firms that seek to demonstrate environmental sustainability are likely to benefit from the resources women offer. Therefore:

Hypothesis 2: Firms demonstrating environmental sustainability credentials are positively associated with the representation of women in top roles.

Export orientation

Exporting remains a viable strategy for firms who seek to internationalize, and remains one of the most popular options for foreign market entry (Zhao & Zou, 2002). As such, scholars have paid considerable attention to what enables firms to engage in export markets successfully. These include factors that are both external and internal to firms (Sousa, Martinez-López, &

Coelho, 2008; Wheeler, Ibeh, & Dimitratos, 2008). External factors are those factors conditioned by foreign environmental characteristics. These include legal and political factors, as well as cultural similarity (Sousa et al., 2008). Where such factors are favorable to the exporting firm, this enables more successful exporting strategies. Internal factors include various firm characteristics (e.g., firm size and age), the firm's export marketing strategy, and management capabilities and competencies (Sousa et al., 2008; Wheeler et al., 2008). However, recent evidence suggests that firms' relationship strategies are critical to exporting (Sousa et al., 2008; Zhang, Cavusgil, & Roath, 2003).

Proposed by Styles and Ambler (1994), a relational paradigm of exporting argues that the ability of a firm to be truly successful in export markets is dependent upon their ability to develop and manage relationships effectively. Here, the very decision to export, as well as ongoing effectiveness, is dependent upon the establishment and maintenance of a network of foreign relationships. The development of trust-based relationships with foreign partners (e.g., select customers, distributors, suppliers) is argued to be a source of competitive advantage (Zhang et al., 2003), and there is empirical evidence to support this idea (Sousa et al., 2008). According to Wheeler et al. (2008), the importance of relational strategies to exporting cannot be underestimated; it is a critical success factor. Following this line of thinking, women are noted for their relational abilities.

Women have been found to be more orientated towards supporting and maintaining relationships than men (Hater & Bass, 1988; Hisrich & Brush, 1984; Prime et al., 2009; Rosener, 1995). Exporting firms would be expected to demonstrate higher levels of women's representation in top roles because women with decision-making authority would be expected to engage in and build better relations with foreign partners, given their relationship management abilities. This would position firms not only to better understand the requirements of these

partners, but also to avoid costly missteps with strategic decisions regarding export strategies. Such relational abilities are essential to exporters (Sousa et al., 2008; Styles & Ambler, 1994; Wheeler et al., 2008; Zhang et al., 2003). Similarly, because dealing with foreign partners is likely to entail disagreements and conflict, women's skills at establishing, supporting, and maintaining relationships gives them the ability to understand, effectively deal with, and better meet the requirements of these partners (Rosener, 1995; Biggins, 1999). Such skills and capabilities would be expected to aid in the formulation of policy and in decisions made regarding export strategies. Hence:

Hypothesis 3: Firms with higher export orientations are positively associated with women's representation in top roles.

METHODS

Sample

The sampling frame included all wine producers based and operating in Australia between 2007 and 2013. The wine industry was chosen for two reasons. First, the wine industry has historically been dominated by men in all types of roles (Port, 2013; Ting, 2013). This provides an opportunity for contrasts between men and women in top roles to be made evident. Second, studying a single industry affords the opportunity to offer a significant contribution to existing knowledge by deepening or widening current understanding (Oxley, Rivkin, & Ryall, 2010), especially with respect to the peculiarities and determinants of a phenomenon at an early stage of knowledge (cf. Hillman et al., 2007).

Data were collected from the sources described below. Given that not every firm had all of the roles under study across the study period, a separate analysis of each role was conducted. This resulted in 1,932 firms and 7,819 firm-year observations for the CEO role; 1,747 firms and 7,142 firm-year observations for the winemaker role; 1,452 firms and 5,658 firm-year

observations for the viticulturist role; and 761 firms and 2,934 firm-year observations for the marketer role. In all cases, due to missing observations, unbalanced panels were constructed.

Collection of the data came from two main sources: the Winetitles database and company websites. Winetitles is a specialist publisher for the international wine industry, publishing a range of books on viticulture, winemaking, and wine appreciation. They also publish several trade journals, including *The Australian New Zealand Wine Industry Journal* and *Australian Viticulture*. Winetitles annually publishes the *Australian and New Zealand Wine Industry Directory*. This directory is one of the most comprehensive of its kind and provides detailed information on all Australian and New Zealand wine companies, including contact details, varieties, tonnage, personnel, visitor facilities, etc. To supplement the directory, company websites were consulted to obtain important information such as year of founding (to calculate the age of a firm), and to cross-reference the names and gender of key personnel where needed.

Variable measurement

Gender diversity. This study examines CEO, winemaker, viticulturist, and marketer roles. In the wine industry, where most firms are small and operate with limited resources, these roles are critical because they directly relate to strategy, product development, and marketing and sales of wine companies (Galbreath, 2014). For each company, if a woman was identified in the given role, this was coded 1, 0 otherwise. Data were collected from the Winetitles directory. However, in cases where gender could not be determined, company websites were consulted for clarification. All cases were rectified and coded appropriately.

Firm size. To measure size, the number of cases produced was used. Firms were coded through a series of categorical variables, where 1 = 1 to 2,499 cases, 2 = 2,500 to 19,999 cases, 3 = 20,000 to 99,999 cases, 4 = 100,00 to 1,499,99 cases, and 5 = over 1,500,000 cases. Data were collected from the Winetitles directory.

Export orientation. Firms were coded on the basis of their percentage of export sales, where 1 = do not export, 2 = 1 to 25 percent, 3 = 26 to 50 percent, 4 = 51 to 75 percent, and 5 = 76 to 100 percent. Data were collected from the Winetitles directory.

Environmental sustainability credentials. The Winetitles directory tracks data on environmental sustainability credentials for: 1) organic vineyards; 2) biodynamic vineyards; 3) environmental certification (e.g., DEMETER)³; and 4) organic products. Each one of these categories can be considered a proxy for environmental sustainability credentials (cf. Delmas & Grant, 2014). Each individual credential was coded 1, 0 otherwise. Codes were then summed to create an overall environmental sustainability credentials variable, ranging from 0 to 4.

Control variables. Given the context of the study, to counter potential alternative explanations (e.g., inertia) for gender diversity, firm age was controlled for, by examining company websites to determine year of founding, and then calculating the age. Another critical control variable includes location. Because women graduates of oenology and viticulture programs vary from state to state and from program to program in Australia (Galbreath, 2014), and because women might be advantaged in the roles studied depending on where they are employed (Galbreath, 2014), location was accounted for by using a series of dummy variables, where 1 = New South Wales; 2 = Queensland; 3 = South Australia; 4 = Tasmania; 5 = Victoria; and 6 = Western Australia. Location was determined by examining company websites. Lastly, because the data spanned 2007 to 2013, dummy variables to control for year fixed effects were included.

³ DEMETER designates that a firm has been independently certified by the Australia government in ecological and sustainable production methods. Under DEMETER, food is grown using biological–dynamic agricultural methods founded on a holistic perception of nature.

RESULTS

Means, standard deviations, and correlations are presented in Table 1. As can be seen in Table 1, 13 percent of the sample have women CEOs, nine percent have women winemakers, ten percent have women viticulturists, and 54 percent have women marketers. The highest correlation of 0.42 ($p < 0.01$) suggests that collinearity does not appear to represent a problem, given that this is well below the multicollinearity indicator of 0.80 (Licht, 1995). As a further test, via OLS regressions, the highest variance inflation factor (VIF) of 2.263 is well below 10, which also indicates that multicollinearity is not likely present (O'Brien, 2007).

[insert Table 1 here]

To test the hypotheses, random-effects probit regression models are used, where a null model estimate was first computed, and then a random-intercepts model was fitted to determine whether or not to reject the null in favor of the alternative model. As for the dummy variables, Western Australia (location) and the year 2007 are the referent variables and are omitted from the analysis. Hypothesis 1, that firm size is negatively associated with women in top roles, finds support (Table 2). Firm size is modestly negative with respect to the CEO role ($-0.270, p < .10$); negative with respect to the viticulturist role ($-0.606, p < 0.01$); and negative with respect to the marketer role ($-0.299, p < 0.001$). Alternatively, firm size is positive with respect to women in the winemaker role ($0.337, p < 0.01$). However, in the main, the results do suggest that the larger the firm, the less likely there are women occupying the top roles studied.

[insert Table 2 here]

Hypothesis 2 predicts that firms with environmental sustainability credentials will have greater representation of women in the top roles. The analysis suggests partial support (Table 2). Firms with environmental sustainability credentials have more women in the CEO role ($1.030, p < 0.01$) and in the marketing role ($0.408, p < .05$). However, firms with environmental

sustainability credentials do not predict women in the winemaking role. While the relationship is positive (0.325), it is insignificant. Similarly, while the relationship between firms with environmental sustainability credentials and women in the viticulturist role is positive (0.322), it is insignificant.

Hypothesis 3 predicts that firms with higher export orientations will have more women represented in top roles. This hypothesis does not find support (Table 2). Export orientation is negative and significant with respect to the CEO role ($-0.255, p < 0.01$). Export orientation is also negative and significant with respect to the winemaker role, ($-0.248, p < 0.05$). For the viticulturist and marketer roles, while the relationships are negative, they are insignificant (viticulturist = -0.080 , n.s.; marketer = -0.032 , n.s.).

As for the control variables, the evidence suggests that firm age, location, and the year of examination are significant. Firm age is negative and significantly associated with women in the marketer role ($-0.003, p < 0.05$). New South Wales is positive and modestly associated with women in CEO ($0.827, p < 0.10$) and viticulturist ($0.827, p < 0.10$) roles, while positive and significantly associated with women in the marketer role ($0.471, p < .001$). South Australia is negative and significantly associated with women in the marketer role ($-0.360, p < 0.01$). Victoria is positive and significantly associated with women in CEO ($0.907, p < 0.05$) and viticulturist ($0.907, p < 0.10$) roles, while negative and significantly associated with women in the marketer role ($-0.353, p < 0.01$). The year 2008 is negative and significantly associated with women in the CEO role ($-0.584, p < 0.01$); 2009 is negative and modestly associated with women in the CEO role ($-0.397, p < 0.10$); 2010 is negative and significantly associated with women in the CEO role ($-0.519, p < 0.05$); and 2011 is negative and significantly associated with women in the winemaker ($-0.472, p < 0.01$) and marketer ($-0.251, p < 0.05$) roles.

DISCUSSION

Expanding the work of Hillman et al. (2007), this study's objective was to explore further firm-level predictors of women in top roles. Given the importance of women in the workforce and the on-going interest in gender diversity in leadership, we expand the literature by looking beyond the often-studied gender diversity of boards of directors in large, publicly-traded firms, to those that are mostly private, of varying firm sizes, and specifically those in the wine industry. Building upon the resource-based view of the firm (RBV) and by studying Australian wine firms across a seven-year period, the results both challenge and extend the findings of Hillman et al. (2007).

Following the RBV, women in top roles are expected to offer differentiated traits and embedded resources that can advantage firms. However, these traits and resources are argued to potentially both help and/or hinder the representation of women in top roles depending on firm characteristics. For example, Hillman et al. (2007) find that firm size positively predicts women on corporate boards of directors. The results of the present study suggest the opposite (at least within the context of the industry and the roles studied): firms size is negatively associated with three of the four roles; namely, the CEO, viticulturist, and marketer roles. Interestingly, firm size is positively associated with women in the winemaking role, perhaps the most prestigious and publicly known face of a wine firm. One plausible explanation for this finding (as opposed to the confirmed negative relationship in the other roles) is that given the criticality of this role to a wine firm's success, as women demonstrate high levels of skill and competence in a craft dominated by men, gender stereotypes are less likely to be enacted in larger and more visible firms where substantial resources and capital are at risk (and therefore such firms have more to risk by delivering a poor quality product); therefore, women winemakers are more likely to effectively compete with men for this vaunted position in larger firms. However, given that

women make up only nine percent of winemakers in the sample, the barriers to entry appear to remain high regardless of firm size.

With respect to environmental sustainability credentials, researchers demonstrate that consumer demand for “green” products is increasingly influencing agricultural production and food marketing strategies (Schmit, Rickard, & Taber, 2012). Further, specific to the wine industry, there is evidence to suggest that key retail channels in some markets—the United Kingdom, for example—are demanding that their wine suppliers demonstrate environmental credibility in production practices (WFA, 2007). These demands suggest not only pressure to adopt environmentally sustainable production practices, but they also represent a potential source of competitive advantage (Atkin, Gilinsky, & Newton, 2012). Given that women appear to demonstrate higher sensitivity to environmental concerns than men (Davidson & Haan, 2012; Learned, 2011; McCright, 2010), the expectation is that firms would seek to deploy more women to help them enact environmental sustainability strategies, which finds partial support in this study. However, in this sample the viticulture role, which is expected to have significant influence on vineyard practices and therefore environmental practices, has a non-significant association with environmental sustainability credentials. Alternatively, firms with environmental credentials are associated with women in the CEO and the marketer role. This could be reflective of firms who seek a branding and compliance strategy that is likely to be initiated and managed by the CEO and marketing roles, and therefore seek to place women in these roles accordingly.

Export orientation finds the least support in this study. Given that firms need to build and maintain strong relationships with a host of foreign actors to achieve export results, the expectation is that women’s strong relationship skills will advantage firms that have greater representation of women in top roles. However, the results are in the opposite direction than

hypothesized. That is, export orientation is negatively associated with women in top roles, specifically women in the CEO and winemaker roles. There are two possible explanations for the findings. First, given that gender stereotypes appear to run deep in the wine industry (Bryant & Garnham, 2014), it could be that the key actors (e.g., retail buyers) in foreign locations needed to establish export credentials for the focal firm simply prefer to do business with men (or prefer wine made by men given that women winemakers are still a relative novelty) while stereotyping women negatively. Second, export strategies are risky (Sousa et al., 2008; Styles & Ambler, 1994; Wheeler et al., 2008). Though there is some evidence to suggest that the propensity of women to take risks is equal to that of men (e.g., Adams & Funk, 2012), far more literature demonstrates that women, in general, are more risk averse than men (Croson & Gneezy, 2009). This could be another plausible explanation as to why firms with high export orientations in this study are negatively associated with women in top roles. Export-oriented firms need risk-takers, and thus may be more likely to rely on men rather than women to carry out their export strategies.

This study also suggests that location and year influence the degree to which women are represented in top roles. There are two factors to consider here. First, cluster theorists argue that geographically proximate firms are advantaged by several factors, including knowledge spillovers, social interaction, and direct observation of competitors (Tallman, Jenkins, Henry, & Pinch, 2004). Such factors are thought to create an innovative *milieu* in the cluster, such that cluster-member firms are advantaged over more isolated firms. Clusters are also thought to create their own unique identities and cultures, which can also contribute to higher levels of competitiveness (Saxenian, 1994). Based on the results of this study, it follows that given that wine production is mainly concentrated in regional clusters (Galbreath, Charles, & Klass, 2013), it might be possible that some wine clusters have cultures that are more open to gender diversity,

or who have firms that more readily recognize the value of women in top roles. Alternatively, some wine clusters could have cultures that are biased against women, making it difficult for them to reach top roles. Second, evidence suggests that women in the wine industry can face pressure to either leave their jobs after having children, or to refrain from having more children (Ting, 2013). Hence, the negative effects of year in this study could in part be due to women leaving the industry after having children, or that they leave due to pressure to place their business responsibilities over those of their families (cf. Bryant & Garnham, 2014). Given that theory seeks to understand the forces that bring about change and the circumstances in which those forces are operative, including what causes what to happen, when, and why, then research that studies women in top roles likely needs to pay close attention to the effects of time (Ancona, Okhuysen, & Perlow, 2001; Orfori-Dankwa & Julian, 2011); for example, when and why time either negatively or positively impacts women representation in top roles.

Finally, the study has implications for practice. Based on the findings, given that 12 percent of CEOs in the Australian wine industry are women, this is somewhat encouraging relative to women CEO representation in the country's largest 500 firms, which stands at around 3 percent (WGEA, 2012). For women seeking to advance to the upper-most echelon, the wine industry might afford greater opportunities than other industries. Further, in line with the research topic, governments around the world are seeking to increase gender equality in the workplace. Through the findings of this study, there could be an incentive to seek greater participation of women in the wine industry, for example. Given that the current full-time employment rate of women in all agricultural industries is relatively low (WGEA, 2012), there appears to be ample opportunity for growth, particularly in regional and rural districts, which are important to many countries' economic futures. From another practical perspective, for women who aspire to advance to top roles, there is very little research that predicts which kinds of

firms—and specifically which firm characteristics—might help or hinder their advancement. Following Hillman et al. (2007), this study advances insights on such firm characteristics.

LIMITATIONS, FUTURE RESEARCH, AND CONCLUSIONS

As with all empirical research, this study is not without limitations. First, the time-frame is limited to 2007–2013. However, given that very little research has examined firm-level predictors of women in top roles in general, and in the wine industry specifically, by relying on multiple years of data we advance the literature by studying a phenomenon over time to generate new insights. Second, only a single industry was studied. While this does limit generalizability, single industry studies are important in that they can offer a significant contribution to existing knowledge through the deepening or widening of current understanding (Oxley et al., 2010). This study contributes to the literature by both challenging and advancing the results of Hillman et al. (2007). Lastly, what constitutes a “top” management role appears to be contextual and open to interpretation. Because this study examines roles in a wide range of firm sizes one has to treat the results in light of how top roles are conceptualized, which may vary from firm to firm and from industry to industry.

Future research directions could be three-fold. First, this study relied on the RBV as a theoretical framework. The RBV aided us in looking specifically at the human capital that women possess that could both enable and/or restrict their representation rates in top roles depending on firm-level characteristics. However, alternative theories might explain why they continue to be underrepresented in top roles. For example, social identity theory posits that individuals classify themselves and others into various social categories such as those based on religion, age cohort, gender, and so on (Tajfel, 1974). Differences between groups in these social categories can lead to biases and negative social identities, which restrict or inhibit in-group members from achievement or advancement. Future research could leverage social identity

theory to examine additional firm-level characteristics in predicting women's representation in top roles. Second, the wine industry is noted for being dominated by men across all types of roles. Future research could explore industries that perhaps have higher rates of women's representation, and whether or not the firm-level predictors of women in top roles differ from previous findings. This line of research would be particularly interesting given that evidence suggests that, in some cases, *both* women and men hiring managers are twice more likely to hire a *man* than a woman (Reuben, Sapienza, & Zingales, 2014). Third, at the national level, culture is an important construct that has implications for gender (Schwartz & Rubel, 2005). Future research is needed to compare firms operating across national cultures to determine if differences in firm-level predictors of women in top roles exist and if so, why.

In conclusion, this study advances research on firm-level predictors of women in top management roles. The findings suggest that, in the wine industry, firm size is, in the main, negatively related to women in top roles. Firms with environmental sustainability credentials appear to predict women in top roles; namely, women in the CEO and in the marketer role. Export orientation, contrary to the hypothesis, is negatively associated with women in top roles and, specifically, CEO and winemaker roles. The findings advance the work of Hillman et al. (2007) and offer fruitful avenues for future research.

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TABLES

Table 1. Descriptive statistics and correlations

Variables	Means	s.d.	1	2	3	4	5	6	7	8
1. Woman CEO	0.13	0.33	1.00							
2. Woman winemaker	0.09	0.28	0.18**	1.00						
3. Woman viticulturist	0.10	0.30	0.22**	0.12**	1.00					
4. Woman marketer	0.54	0.50	0.11**	0.01	-0.01	1.00				
5. Firm age	20.98	23.51	-0.04**	0.04**	-0.05**	-0.04**	1.00			
6. Firm size	1.63	0.78	-0.10**	0.00	-0.13**	-0.16**	0.29**	1.00		
7. Environmental credentials	0.07	0.44	-0.01	0.01	0.02*	0.01	0.00	0.02*	1.00	
8. Export orientation	2.31	1.03	-0.07**	-0.03**	-0.08**	-0.07**	0.01	0.42**	0.01	1.00

* $p < 0.05$

** $p < 0.01$

Table 2. Results of the random-effects probit regression analysis for the representation of women in top roles

Variables	Representation of women by role			
	CEO	Winemaker	Viticulturist	Marketer
<i>Controls</i>				
Firm age	-0.003	0.003	-0.003	-0.003*
NSW ^a	0.827 [†]	0.093	0.827 [†]	0.471***
QLD ^a	1.084	-0.243	1.084	-0.092
SA ^a	0.677	0.347	0.677	-0.360**
TAS ^a	0.088	-0.294	0.088	-0.211
VIC ^a	0.907*	0.006	0.907*	-0.353**
Dummy 2008	-0.584**	0.043	0.139	-0.096
Dummy 2009	-0.397 [†]	-0.183	-0.047	0.011
Dummy 2010	-0.519*	-0.157	0.073	-0.084
Dummy 2011	-0.221	-0.472**	0.257	-0.251*
Dummy 2012	-0.237	-0.229	0.199	-0.106
Dummy 2013	-0.008	0.134	-0.380	-0.020
<i>Independent</i>				
Firm size	-0.270 [†]	0.337**	-0.606**	-0.299***
Environmental credentials	1.030**	0.325	0.322	0.408*
Export orientation	-0.255**	-0.248*	-0.080	-0.032
<i>Constant</i>				
Log likelihood	-13.796***	-6.155***	-7.298***	-1.104***
Wald χ^2	41.69***	26.80*	36.92**	152.59***
Observations	7,819	7,142	5,658	2,934
Number of firms	1,932	1,747	1,452	761

^a NSW = New South Wales; QLD = Queensland; SA = South Australia; TAS = Tasmania; VIC = Victoria

[†] $p < 0.10$

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$