CHALLENGING THE FEMALE UNDERPERFORMANCE HYPOTHESIS

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ABSTRACT

In their recent review of prior studies examining firm performance, Klapper and Parker (2010, p.7) conclude that "women entrepreneurs tend to underperform relative to their male counterparts." However, Robb and Watson (2011) argue that much of this prior research is based on inappropriate performance measures and/or does not adequately control (due to data limitations) for important demographic differences. Given the conflicting findings reported in the literature, the aim of this study is to replicate the study by Robb and Watson (2011) to see if their findings can be generalized to another geographical location. Our results, based on an analysis of 209 female-owned and 263 male-owned young Australian firms, confirm those of Robb and Watson (2011). We believe that this outcome should help dispel the female underperformance myth; which if left unchallenged could result in inappropriate policy decisions and, more importantly, could discourage women from establishing new ventures.

Key words: New ventures; Gender; Firm performance

INTRODUCTION

Prior studies examining and comparing the performance of female- and male-owned firms have generally found that female-owned firms under-perform male-owned firms on a variety of measures such as revenue, profit, growth and closure rates (Du Rietz and Henrekson 2000). Even after controlling for key demographic differences (such as age and industry) the majority of prior research has still found that female-owned firms under-perform relative to male-owned firms (for a review of this literature, see Klapper and Parker 2010). However, Robb and Watson (2011) argue that much of this prior research has been based on inappropriate performance measures that do not take into account the level of resources committed to the venture, or the underlying risks inherent in the venture. Indeed, in their analysis of a large longitudinal (five-year) database of new firms in the U.S., Robb and Watson (2011) report that on the basis of closure rates, return on assets (ROA) and in risk-adjusted terms (using the Sharpe, 1975, ratio) female-owned firms do not underperform male-owned firms.

Given the conflicting findings reported in the literature, the aim of this study is to replicate the study by Robb and Watson (2011) to determine if their findings can be generalized to another geographical location. We believe it is important that this issue be clarified, otherwise public policy-makers will continue to have "little guidance on such difficult issues as whether or not unique training and support programs should be designed for women versus men" (Fischer, Reuber and Dyke 1993, p.151). Further, if the notion of female underperformance is simply a myth (without any foundation in reality) then, in the absence of compelling evidence dispelling this myth, women could inappropriately be discouraged from establishing new ventures.

In the next section we provide a brief literature review with respect to firm performance and, in particular, potential gender differences that might (or might not) be expected. This is followed by a description of the data and methods used to examine the performance of our sample of female- and male-owned new ventures. Our results are then presented and discussed. We conclude with a summary of our key findings and implications, together with the study's limitations and suggestions for future research.

LITERATURE REVIEW

When it comes to speculating about likely gender differences in firm performance there appears to be two schools of thought that prevail: liberal feminist theory and social feminist theory (Fischer et al. 1993). Liberal feminist theory suggests that businesses run by women will exhibit poorer performance because women are overtly discriminated against and/or because of other systematic factors that deprive women of important resources. By way of contrast, social feminist theory argues that men and women are inherently different by nature but that these differences do not imply that women will necessarily be any less (or more) effective in business than men; women might simply approach their businesses differently (for example, by taking fewer risks).

The majority of past research appears to have adopted a liberal feminist theory perspective in the sense that researchers have attempted to explain the apparent under-performance of female owned businesses by referring to potential discrimination against them, for example, by bankers (for a review of this literature, see Riding and Swift, 1990) and/or other systematic factors that might deprive women of important resources (for example, limited access to networks, Aldrich, 1989). The assumption in these studies is that if certain biases against female entrepreneurs are removed there should be no difference in the relative performances of female- and male-owned businesses (Anna, Chandler, Jansen and Mero 1999).

However, Robb and Watson (2011) note that anti-discrimination legislation has been in place for many years in the U.S. and, therefore, they argue that it is unlikely that female business owners are systematically discriminated against. On this basis, Robb and Watson (2011) suggest that both liberal and social feminist theory support the proposition that there should be no difference in the performances of female- and male-led firms; provided appropriate performance measures are adopted and important demographic variables are controlled. Given that many other (particularly western) countries also have a long history of anti-discrimination legislation, the findings reported by Robb and Watson (2011) should hold in other geographical locations (such as Australia, which is the source of data for the current study).

METHOD

Data limitations often make it difficult to undertake a robust comparison of gendered business performance because of the heterogeneous nature of entrepreneurship which typically requires the collection of many explanatory factors. There is also the added difficulty of collecting a random sample of firms. Many surveys suffer from success bias because they only access surviving businesses, thereby ignoring businesses that have failed. To address these issues we use data from the CAUSEE (The Comprehensive Australian Study of Entrepreneurial Emergence) database on 569 young firms (236 female-owned and 333 male-owned) identified through a random survey of the Australian population and tracked over a three-year period; thus providing us with the ability to identify both closed and surviving firms. The CAUSEE panel data was collected through telephone surveys. A firm was designated as female- (male-) owned if a female (male) answered the telephone survey and that person also had a majority ownership share in the business.

Following Robb and Watson (2011), firm performance was assessed on the basis of closure rates, return on assets (ROA) and the Sharpe (1975) ratio. Note that there can be up to two observations per firm when examining firm closure. At the time of the first survey all firms were operational, but each of these firms could be recorded as having closed by the time of the second or third survey. Any firm that had closed by the time of the second survey was coded '1' for that year; with continuing firms coded '0'. This procedure was repeated for the following year. With respect to ROA, our second performance measure, we again treat each firm year as a separate observation and, therefore, for this measure of performance there is a maximum of three observations per firm. ROA is calculated by dividing the profit in a given year by the total assets on hand at the end of that year. In calculating the Sharpe (1975) ratio only firms that survived the three-year period of this study are included and, therefore, there can only be one observation per firm for this measure of firm performance. The Sharpe (1975) ratio for each firm is calculated by dividing the mean profit for the three years divided by the standard deviation in those annual profits.

In terms of control variables, our multivariate analysis includes three that are related to the firm (industry, size and incorporation) and a further three related to the owner (hours worked in the business each week, education and experience). Anna et al. (1999, p.279) suggest that one possible explanation for any systematic difference in firm performance by gender might be because "female business ownership is concentrated primarily in the retail and service

industries where businesses are relatively smaller in terms of employment and revenue as opposed to high technology, construction, and manufacturing." Also, Hutchinson, Hutchinson, and Newcomer (1938) note that ventures requiring little capital can be expected to have higher *closure* rates because when large amounts of capital are at stake the owners are likely to make a more thorough investigation of the prospects for the new venture. Given the comparatively lower hurdle (in terms of capital requirements) for establishing ventures in the retail and services sector (Brush and Chaganti 1999) these sectors could be expected to have higher *closure* rates. Further, service businesses typically have a greater reliance on their founder and may well cease when that person retires or decides to pursue another activity (Watson and Everett 1993). Therefore, if females are more likely to establish ventures in the retail and services sector, and less likely to establish businesses in the manufacturing sector, using *closure* rates as a measure of firm performance is likely to be biased against female business owners.

The second firm-level variable we control for is firm size; measured in terms of the number of employees. Kalleberg and Leicht (1991) point to research showing that larger firms are more likely to survive, while smaller firms are likely to be more profitable. Given much prior research suggesting that female-owned firms tend to be smaller than their male-owned counterparts (see, for example, Cliff 1998; Sabarwal and Terrell 2008) it would seem prudent to control for firm size in any performance comparison of female- and male-owned firms.[1]
Our final firm-level control variable is 'incorporation'. Kalleberg and Leicht (1991, p.148) note that 'incorporation is an indicator of the extent to which a business is institutionalized and has certain legal and financial protections that may inhibit dissolution.' It is reasonable to expect, therefore, that incorporated firms are less likely to be liquidated/closed (and more likely to be sold) than unincorporated firms. This suggests that incorporation will be associated with lower closure rates and, given the additional costs involved, might also be associated with a lower ROA and Sharpe (1975) ratio. To the extent that female-owned firms are likely to be smaller it seems reasonable to suggest that they are less likely to be incorporated and, therefore, controlling for type of legal organization would also be prudent in comparing the performances of female- and male-owned firms.

[1] It should also be noted that our second measure of firm performance, ROA, directly controls for the size of a firm's asset base.

There were a further three control variables related to our sample of firm owners that were incorporated into our multivariate analysis. First, is the hours worked in the business by the owner each week. Due to family commitments, female business owners (on average) might have less time available for their businesses than male owners (Birley 1989; Fasci and Valdez 1998). As noted by Jennings and McDougald (2007, p.752), "women are still expected to be the primary nurturer and caregiver in the family" and, therefore, this is likely to impact the amount of time women (compared with men) are able to allocate to their businesses. Second is owner education. Bates (1990) found that a college education was significantly positively associated with firm survival and, therefore, we believe it would be prudent to include education as a control variable in our multivariate analysis even though recent studies suggest little difference in the educational backgrounds of female and male business owners (Kepler and Shane 2007). Third is the owner's experience. Bosma et al. (2004) report that prior industry experience substantially improved firm performance (survival, profitability and growth) and Kepler and Shane (2007) report that, prior to commencing their new ventures, the men in their study typically had more business experience than the women. In terms of experience, the CAUSEE data includes details concerning the: owner's industry work experience (in years); owner's management work experience (in years); number of other businesses started by the owner; and number of other businesses currently owned by the owner. Each of these variables is incorporated into our analysis to control for owner experience when comparing the performances of our sample of female- and male-owned firms. Note that the female- and male-owned new ventures we compare all began operations at about the same time (between 2004 and 2006) and, therefore, there is no need to include an age control variable in our multivariate analysis.

RESULTS AND DISCUSSION

Tables 1 and 2 provide the demographic details for our sample of female- and male-owned firms and their owners, respectively. As the aim of this research is to determine if there are significant differences between female and male business owners and their firms the data was analysed using the two-tailed t-test to test the null hypothesis that the population mean is the same for both groups. This test was performed with unequal variances to avoid making the assumption of equal variations within the two groups.

From Table 1 it can be seen that, compared to the male-owned new ventures, the female-owned new ventures are over-represented in the Health, education and social sector; while they are under-represented in Construction, Agriculture, Transportation and Communications. The female-owned new ventures are also more likely to be partnerships and less likely to be incorporated. There appears, however, to be little difference between the female- and male-owned new ventures in terms of firm size (number of employees).

Table 1: Firm demographics

	Male-owned firms N=263	Female-owned firms N=209	
Industry			
Retailing	8%	12%	+
Hospitality	2%	3%	
Health, education & social	3%	20%	***
Consumer services	12%	11%	
Manufacturing	4%	3%	
Construction	18%	1%	***
Agriculture	8%	3%	*
Mining	0%	0%	
Wholesale	2%	3%	
Transportation	4%	2%	+
Utilities	1%	0%	
Communications	4%	2%	+
Finance	3%	3%	
Insurance	0%	0%	
Real Estate	2%	1%	
Business Services	13%	12%	
Other	13%	13%	
	100%	100%	
Number of employees	1.3	1.2	
Type of Legal Organization			
Sole Trader	58%	58%	
Partnership	12%	15%	*
Company	26%	18%	***
	100%	100%	

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

From Table 2 it can be seen that, compared to the male business owners, the female owners worked significantly less hours in their businesses each week, had less industry experience, had previously been involved in fewer business start-ups and were less likely to own another business.

Table 2: Owner demographics

	Male-owned firms N=263	Female-owned firms N=209	
Hours worked per week	49	42	**
Education			
High school/Some high school	39%	33%	
Trade/Some College	26%	24%	
University Undergraduate Degree	21%	25%	
University Graduate Degree	11%	13%	
None of these	3%	3%	
	100%	100%	
Experience			
Industry work experience (years)	13	10	*
Management work experience (years)	14	12	
Started other businesses (number)	1.0	0.6	***
Other businesses currently owned (number)	0.3	0.2	+

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Table 3 reports the performance outcomes for our sample of female- and male-owned new ventures. As can be seen from Table 3, the female-owned firms had both a significantly lower investment in assets and lower profits compared to their male counterparts. However, consistent with the US findings reported by Robb and Watson (2011), the ROA for the two

groups did not differ significantly. Similarly, there is no difference between female- and male-owned firms in terms of the Sharpe (1975) ratio.

Table 3: Performance Outcomes

Mean performance outcomes	Male-owned firms	Female-owned firms	
Firm closure rates			
- Closed Year 2	9%	10%	
- Closed Year 3	9%	7%	
ROA			
- Profit (‘000)	50.1	35.7	*
- Assets (‘000)	100.0	61.7	*
- ROA	5.1%	5.8%	
Sharpe (1975) ratio			
- Mean Profit (‘000)	45.6	34.1	
- S.D Profits (‘000)	40.3	33.2	
- Sharpe Ratio	3.0	2.8	

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Tables 4, 5 and 6 provide the multivariate results incorporating the control variables reported in Tables 1 and 2 into a multivariate analysis of firm closure rates, ROA and the Sharpe (1975) ratio for our sample of female- and male-owned new ventures.

With respect to firm closure rates the results reported in Table 4 confirm the univariate results reported in Table 3; namely, that female-owned firms do not underperform male-owned firms on this first performance measure.

Table 4

Results from the Cox-proportional Hazard Model for Firm Closure

Variables	Model 1		Model 2	
Female			.79	
			(.19)	
Number of Employees	.86		.85	
	(.09)		(.09)	
Incorporated	.62		.61	
	(.21)		(.21)	
Owner's Hours Worked	.99	**	.99	**
	(.01)		(.01)	
Industry Experience	.99		.99	
	(.01)		(.01)	
Management Experience	1.02		1.01	*
	(.01)		(.01)	
University Degree	.50	*	.50	**
	(.13)		(.13)	
Industry Health etc.	1.04		1.13	
	(.36)		(.40)	
Industry Construction	1.34		1.13	
	(.45)		(.43)	

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

With respect to ROA the results reported in Table 5 again confirm the univariate results reported in Table 3; namely, that female-owned firms do not underperform male-owned firms on this second performance measure.

Table 5

Linear Regression Results for ROA

	ROA	
Variables	Model 1	Model 2
Female		-.00
Number of Employees	-.09*	-.09*
Incorporated	.00	.00
Owner's Hours Worked	-.00	-.01
Industry Experience	.10+	.10+
Management Experience	-.11*	-.11*
University Degree	.06	.06
Industry Health etc.	.04	.03
Industry Construction	-.03	-.03
R-squared	.02	.02

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

Finally, with respect to the Sharpe (1975) ratio, the results reported in Table 6 also confirm the univariate results reported in Table 3; namely, that female-owned firms do not underperform male-owned firms on this third, and final, performance measure.

Table 6

Linear Regression Results for the Sharpe (1975) ratio

	Sharpe Ratio	
Variables	Model 1	Model 2
Female		-.01
Number of Employees	-.00	-.00
Incorporated	-.04	-.04
Owner's Hours Worked	.03	.03
Industry Experience	.21*	.21*
Management Experience	-.18+	-.18+
University Degree	.11	.11
Industry Health etc.	-.08	-.07
Industry Construction	.02	.02
R-squared	.04	.04

*** p<0.001, ** p<0.01, * p<0.05, + p<0.10

CONCLUSION

Consistent with the findings reported by Robb and Watson (2011) for new ventures in the US, our findings indicate that female-owned new ventures in Australia do not under-perform their male counter-parts in terms of either closure rates, ROA or the Sharpe (1975) ratio. We believe that this outcome should help dispel the female underperformance myth; which if left unchallenged could result in inappropriate policy decisions and, more importantly, could discourage women from establishing new ventures.

A key implication of our findings (for both theory and practice) is that future research might be better served focusing on those factors that facilitate (or inhibit) the success of newly established firms, irrespective of the gender of their owners. As noted by Ahl (2006, p.604),

the results of much previous research suggest that the '[d]ifferences within each sex [are] much larger than the average differences, if any, between the sexes.'

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