

No. 1 / 2014

Mekong Institute

Research Working Paper Series 2014



Impacts of Female CEOs on Enabling
Firm Performance and Development:
Evidence from Thai Manufacturers

Thananut Singhathep



Mekong Institute
Research Working Paper Series 2014

**Impacts of Female CEOs on Enabling
Firm Performance and Development:
Evidence from Thai Manufacturers**

Thananut Singhathep

December, 2014

Thananut Singhathep – was granted a scholarship to pursue Master's Degree in Management at International College of the National Institute of Development Administration (ICO NIDA), Thailand. His research experience lies in areas including gender in management, human capital development and human resource development of Thai SMEs.

This publication of Working Paper Series is part of the Mekong Institute – New Zealand Ambassador’s Scholarship (MINZAS) program. The project and the papers published under this series are part of a capacity-building program to enhance the research skills of young researchers in the GMS countries.

The findings, interpretations, and conclusions expressed in this report are entirely those of the authors and do not necessarily reflect the views of Mekong Institute or its donors/sponsors. Mekong Institute does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequences of their use.

For more information, please contact the Communications and Knowledge Management Department of Mekong Institute, Khon Kaen, Thailand.

Telephone: +66 43 202411-2

Fax: + 66 43 343131

Email: library@mekonginstitute.org

Technical Editors: Dr. Piriya Pholphirul, Associate Dean, International College of NIDA, National Institute of Development Administration (NIDA)

Dr. Jacqueline Parisi, Deputy Director, Mekong Institute

Mr. Sanjay Gathia, Program Manager, Mekong Institute

Language Editor: Dr. Vilailuk Tiranutti

MINZAS Program Coordinator: Mr. Seang Sopheak, Project Coordinator, Mekong Institute

Comments on this paper should be sent to the author

Thananut Singhathep: National Institute of Development Administration (NIDA), Serithai Road, Klong-Chan, Bangkok, Thailand 10240. Tel: +66 89 752 3240, Email: s.thananut@gmail.com

or

Communications and Knowledge Management Department, Mekong Institute

Table of Contents

List of Abbreviations	iv
List of Figures	v
List of Tables	vi
Acknowledgements	vii
Abstract	viii
1. Introduction	1
2. Literature Review	2
3. Methodology and Data Analysis	4
4. Conclusions and Policy Recommendations	19
References	21
About MINZAS	24
The Mekong Institute	25

List of Abbreviations

CEO	:	Chief Executive Officer
FTPI	:	Foundation for the Thailand Productivity Institute
ROA	:	Return on Assets
SMEs	:	Small and Medium Enterprises

List of Figures

Figure 1:	Percentage of firms with female CEOs in Thailand compared to East Asia and Pacific and all countries in the World	7
Figure 2:	Percentage of firms led by female CEOs in Thailand by firm size	7
Figure 3:	of Firms in Thailand with Female CEOs by Industry	8
Figure 4:	Percentage of firms in Thailand with female CEOs by region	9

List of Tables

Table 1:	Descriptions of dependent variables	5
Table 2:	Descriptions of independent variables	5
Table 3:	Mean of independent variables	11
Table 4:	Estimation of the Impact of Female CEOs on Firm Performance	13
Table 5:	Estimation of impact of female CEOs on firm development	16

Acknowledgements

I am using this opportunity to express gratitude to the Mekong Institute (MI) under the MINZAS scholarship for both financial and technical support. Specially, I would like to extend my deepest gratitude to my home advisor, Professor Dr. Piriya Pholpirul, for aspiring guidance, and excellent caring and patience.

I would like to express appreciation to MI advisors, Dr. Jacqueline Parisi and Mr. Sanjay Gathia, for all brilliant comments and constructive advices. Warm thanks to all MINZAS fellow scholars, their friendship and encouragement were sincerely appreciated. Additionally and importantly, I also would like to thank Mr. Seang Sopheak, Ms. Lalana Kimsantisuk and other MI staff for organizing the fruitful research and training sessions. Their contribution and effort made my time at MI productive and enjoyable.

Abstract

Previous literature has noted the underperformance of women-led firms relative to male-led ones in both developed and developing countries. Using Thailand as a case study of a developing country, this paper investigates the impact of female CEOs on performance and development among Thai firms. Surveys of 1,043 firms generated data used to analyze how female leadership could have impacts on firm performance and development. The results suggest that female CEOs have negative impacts on both short-term financial performance indicators, including annual sales and profits, and long-term development of firms, for which new products and the introduction of new technology and provision of employee training were used as proxies. However, this negative association is found to have diminished in the case of female CEOs who completed a degree. With regard to firms' long-term development, including innovation and employee training, female CEOs are found to have a negative impact on firm innovation (introducing new products and technology).

1. Introduction

The number of female-led firms is constantly growing worldwide. These increasing numbers and the importance of female leadership of firms have attracted the attention of scholars around the globe, and the performance of firms led by women has been widely studied in many countries—developed, developing, and least-developed economies – for example, Australia (Robb & Watson, 2010; Watson, 2002), Lao PDR (Inmyxai & Takahashi, 2010), Malawi (Chirwa, 2008), Malaysia (Amran, 2011), Taiwan (Hsu, Kuo, & Chang, 2013,) and the United States (Fairlie & Robb, 2008; Fasci & Valdez, 1998; Cuba et al., 1983; Robb & Watson, 2010; Swinney et al., 2006). Empirical studies have reported on the different impacts female leaders have on firm performance. Several studies conducted in developed countries, where women are generally accepted in the labor market, demonstrate that having female leaders of firms produces mixed results. While many research findings provide evidence of underperformance of female-led enterprises compared to male-led ones, some of the literature argues that there are no gender-based differences in terms of financial and non-financial performance. In contrast, studies of developing countries point only to a negative influence of female leaders on firm performance.

Despite a number of research studies on the topic of the performance of female-led firms elsewhere, there are currently very few empirical studies on the performance of female-led firms in Thailand, the country that has the largest proportion (49 percent) of female CEOs of all businesses in Thailand according to Grant Thornton’s International Business Report (IBR) (2013). With a figure this high compared to other parts of the world, it is thus reasonable to question the impact that they (female CEOs) have on their firms in terms of financial performance and development, which affect the Thai economy as a whole.

While a number of previous studies have investigated the role of a female leader who is an owner of a firm or an entrepreneur, this paper, instead, focuses on female CEOs because of the aforementioned dominance of female CEOs in Thailand and because of the fact that CEOs are more directly involved in management than are owners. Thus, CEOs could be expected to have more influence on firm performance and development than are owners.

Despite a large number of female leaders and their importance to the Thai economy, there is currently no research investigating the impacts female CEOs have on enabling performance

and development of firms in Thailand. To address this knowledge gap, the present study intends to provide empirical evidence of this relationship and to suggest policy recommendations for future research on this topic.

2. Literature Review

Previous literature on the performance of firms under female leadership has shown mixed results. Several studies have pointed out that female-led businesses are outperformed by male-led ones. For instance, Fasci and Valdez (1998) studied 1,000 male-led and 1,000 female-led small accounting firms in the US and found that there are significant differences between male-led firms and female-led firms in terms of the profit ratio (the ratio of net profit to gross revenue), among other differences. Using firm-level data from the U.S. Census Bureau, Fairlie and Robb (2008) found that, compared to firms led by men, women-led firms were less successful in terms of financial performance since female owners/leaders tended to have less financial capital and human capital (prior work experience in family business) when starting operations. Likewise, upon analyzing the longitudinal Kauffman Firm Survey data, Robb (2008) found that firms owned by women tended to have lower profitability, employment, and survival rates than those owned by men. Moreover, Hsu et al. (2013), investigating data from 1992-2008 from Taiwanese small public accounting firms, discovered that firms under male leadership had better financial performance than did those led by female. In another example, Inmyxai and Takahashi (2010) investigated and compared performance of 493 male-led and 347 female-led micro, small, and medium-sized enterprises (SMEs) in the Lao PDR and found that firms led by women performed poorly relative to those led by men. In addition, Amran (2011) examined 182 Malaysian family companies which were firms listed on Bursa Malaysia (an exchange holding company operating and regulating national stock and futures exchange in Malaysia) from 2003 to 2007 and concluded that female leaders had negative impacts on firms' financial performance.

Even though numerous findings indicate that female-led firms are outperformed by those led by men; other studies report no gender-based differences in firm performance and success. For example, Kalleberg & Leich (1991) examined 411 companies in South Central Indiana and found that businesses led by women were not less likely to succeed than were those led by men. Some researchers point out that firms led by women have similar levels of financial

performance to those led by men. Using firm-level data from registered enterprises, the study of firms in Eastern Europe and Central Asia, Latin America, and Sub-Saharan Africa by Bardasi et al. (2011) found that, when controlling the sizes of loans, gender-based differences in terms of the impact of loans on total sales are not detected. Some evidence suggests that firms headed by women perform equally well as those headed by men in terms of sales, assets, or equity (Jennings & Brush, 2013). A study of 178 female-controlled and 2,868 male-controlled Australian firms from 1994 to 1998 and of 1,024 female-controlled and 2,948 male-controlled business start-ups in the US from 2004 through to 2007 (Robb & Watson, 2010) revealed that, after controlling for demographic distinctions, female-controlled SMEs were not outperformed by male-controlled ones in terms of survival rate, return on assets (ROA), or in risk-adjusted terms (Sharpe ratio). Moreover, Chirwa (2008) studied micro and small enterprises in Malawi and found that there were no significant differences in terms of profit margin between male- and female-led enterprises. However, according to the study, female-led enterprises were likely to grow more expeditiously in terms of employment than were male-headed enterprises due partly to the fact that female-led enterprises are the main target group of credit facilities of microfinance institutions.

Moreover, in some studies, performance of female-led firms was found to be better than for firms led by male. This is particularly evident in developed countries. For example, Watson (2002) examined data from 14,426 Australian firms obtained from the 1994-95, 1995-96, 1996-97, and 1997-98 Business Growth and Performance Survey and found that, after certain variables were removed, female-led businesses tended to have better performances than did male-led ones. Davis et al. (2010) had a similar finding after studying 155 small and medium-sized enterprises (SMEs) operating in the retail and service industries in the US and found that firms led by women were also found to have better financial performance compared to male-led ones due mainly to stronger emphasis on market orientation. In the same way, Khan & Vieito (2013) studied data from Standard and Poor's ExecuComp database and discovered that firms managed by female CEOs were associated with better performance in terms of return on assets (ROA). Also, using a sample of S&P 500 firms, a study by Peni (2014) suggested a positive association between female CEOs and firm performance.

3. Methodology and Data Analysis

The data used in our analysis of innovative investment and immigration are from the World Bank's Enterprise Survey in Thailand, or the so-called "Productivity and Investment Climate Survey (PICS)" funded by the Royal Thai Government with technical assistance from the World Bank, which was conducted between April 2007 and November 2007 and surveyed 1,043 manufacturing establishments. The survey covered six regions of Thailand (North, Central, Bangkok and vicinity, East, Upper and Lower Northeast, and South) and nine industries based on ISIC classifications (food processing, textiles, garments, automobile components, electronic components, electrical appliances, rubber and plastics, furniture and wood, and machinery and equipment). Female CEOs headed 341 firms and 702 firms were led by male CEOs. In terms of firm size, 500 were large, 367 were small, and 167 were medium-sized.

The questionnaires contain questions pertaining to the firms' general information, governance and ownership structure, investment, technology and innovation, human capital, investment climate constraints and business relations, infrastructure, access to land and government regulations, international trade, products and inputs, and corporate finance. The main benefits of using the datasets are that the samples are nationally representative and provide data on both firm characteristics and human capital.

As described in Table 1, this paper divides dependent variables into two main categories including 1) short-term financial performance indicators including annual sales and profit (Fairlie & Robb, 2008; Hsu et al., 2013; Kalleberg & Leich, 1991; Rosa et al., 1996; McPherson, 1996; Chirwa, 2008), and 2) long-term development indicators including introduction of new products and technology as well as training provided to employees, as innovative investment and technology upgrade are indicators explaining how the CEOs perceive sustainability of their firms.

To examine the impacts of female entrepreneurs, owner's and firm's characteristics on firm performance and development, this paper uses CEO's gender, education and industry-related experience, and other firms' characteristics as independent variables, as described in Table 2.

Table 1: Descriptions of dependent variables

Dependent variables	Definitions
<u>Short-term performance</u>	
lsales (log-scale)	Annual sales/turnover of a firm in the previous year
Lprofit	Annual profit of a firm in the previous year
<u>Long-term development</u>	
Newtech	Constructed to be equal to 1 if a firm introduced new technology and 0 otherwise
newproduct	Constructed to be equal to 1 if a firm introduced new product and 0 otherwise
Training	Constructed to be equal to 1 if a firm invested in training and 0 otherwise

Table 2: Descriptions of independent variables

Independent variables	Definitions
femaleceo (dummy)	Constructed to be 1 if the CEO is female and 0 otherwise
ceo_colleedu (dummy)	Constructed to be 1 if the CEO completed college degree and 0 otherwise
ceo_hivocedu (dummy)	Constructed to be 1 if the CEO completed higher vocational education and 0 otherwise
ceo_uppersecedu (dummy)	Constructed to be 1 if the CEO completed vocational /upper secondary education and 0 otherwise
ceo_lowersecedu (dummy)	Constructed to be 1 if the CEO completed lower secondary education and 0 otherwise
ceoexp (years)	Number of years of top manager's prior industry-related experience in the industry/sector
firmage(years)	Years of operation of a firm
comcontrol(percent)	Percentage of production machines controlled by computers
caputi (percent)	Percentage of output that a firm can produce as relative to the maximum output that a firm can possibly produce

Independent variables	Definitions
logkl (log-scale)	Amount of machinery and equipment rented or owned by a firm divided by total number of employees
skilled(percent)	Percentage of skilled immigrant workers relative to total skilled production workers
unskilled(percent)	Percentage of unskilled immigrant workers relative to total unskilled production workers
secondedu (percent)	Percentage of employees who completed secondary education
colledu(percent)	Percentage of employees who completed college education
medium(dummy)	Constructed to be 1 if a firm is medium-sized (hiring 51-200 employees)
large(dummy)	Constructed to be 1 if a firm is large-sized (hiring more than 200 employees)
small (dummy)	Constructed to be 1 if a firm is small-sized (hiring 1-50 employees)
border(dummy)	Constructed to be 1 if a firm is in bordering provinces, and 0 otherwise
loan(dummy)	Constructed to be 1 if a firm has taken any loan during the previous 3 years, and 0 otherwise
f_x_colle_edu	An interaction between femaleceo and ceo_colleedu
f_x_ceo_hivoceedu	An interaction between femaleceo and ceo_hivoceedu
f_x_ceo_upperseceedu	An interaction between femaleceo and ceo_upperseceedu
f_x_ceo_lowerseceedu	An interaction between femaleceo and ceo_lowerseceedu
f_x_ceoexp	An interaction between femaleceo and ceoexp
f_x_firmage	An interaction between femaleceo and firmage
f_x_small	An interaction between femaleceo and small
f_x_medium	An interaction between femaleceo and medium
f_x_loan	An interaction between femaleceo and loan

Analyzing the World Bank’s Enterprise Survey reveals that Thailand has the highest percentage of firms led by female CEOs (32.69 percent) compared to the average for East Asia and the Pacific countries (29.30 percent) and the world average (18.50 percent). This

indicates that the business environment and culture in Thailand are more open for women than in other countries in the same region, such as Malaysia (2007) (8.7 percent), Vietnam (2009) (26.4 percent), Indonesia (2009) (31.2 percent, and Lao PDR (2012) (32.2 percent). and Figure 2 shows the percentage of firms with female CEOs in Thailand compared to East Asia and the Pacific countries as well as all other countries (Figure 1).

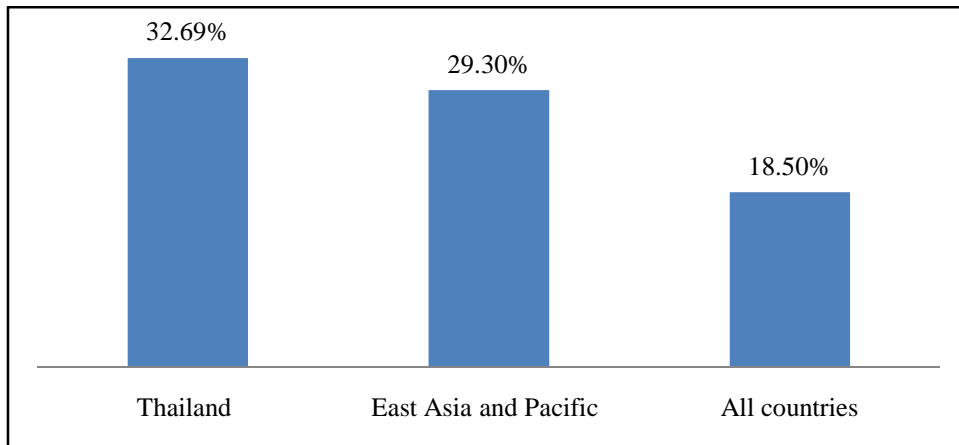


Figure 1: Percentage of firms with female CEOs in Thailand compared to East Asia and Pacific and all countries in the World

Source: www.enterprisesurveys.org

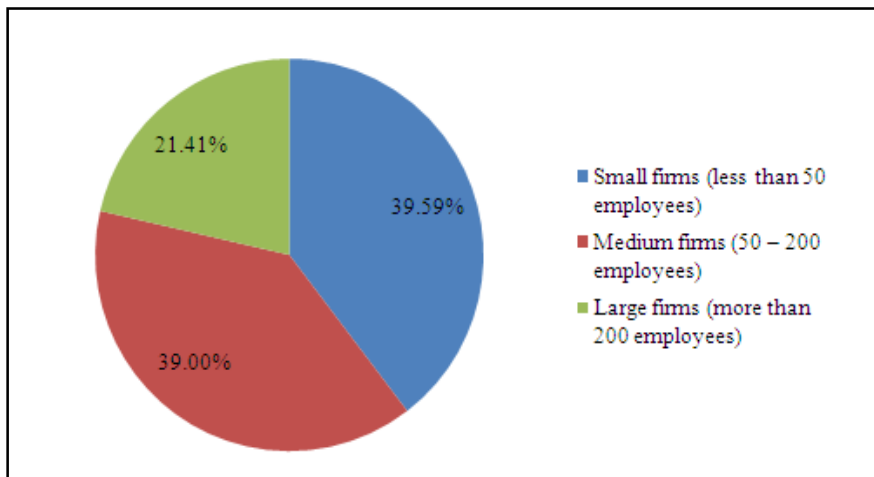


Figure 2: Percentage of firms led by female CEOs in Thailand by firm size

Source: www.enterprisesurveys.org

With regards to the size of firms led by female CEOs, from the data it is found that 39.59 percent, 39.00 percent, and 21.41 percent of small, medium, and large firms, respectively, are led by female CEOs. This finding points to the fact that female CEOs are more concentrated

in small and medium firms. According to Aldrich (2000) and Aldrich and Auster (1986), the size of a firm can indicate its success in the past and thus may impact the current performance of a firm. The fact that a majority of female CEOs lead small and medium firms may lead to underperformance when compared to firms led by men (Figure 2).

In terms of particular industries, female CEOs were most concentrated in the garment industry (45.91 percent), followed by furniture and wood (39.00 percent), electronic components (33.85 percent), food processing (33.33 percent), machinery and equipment (30.12 percent), rubber and plastics (31.01 percent), textiles (30.08 percent), electrical appliances (25.00 percent), and auto components (17.43 percent (Figure 3). Moreover, firms in heavy industry are found to invest more in innovation and research and development. Consequently, the fact that female are more likely to head small scale industries may result in their gender having an overall lower level of firm development and performance (Bardasi, Sabarwal & Terrell, 2011) than do male CEOs who tend to lead firms in heavy-capital industry. Figure 3 demonstrates the percentage of firms in Thailand with female CEOs by industry.

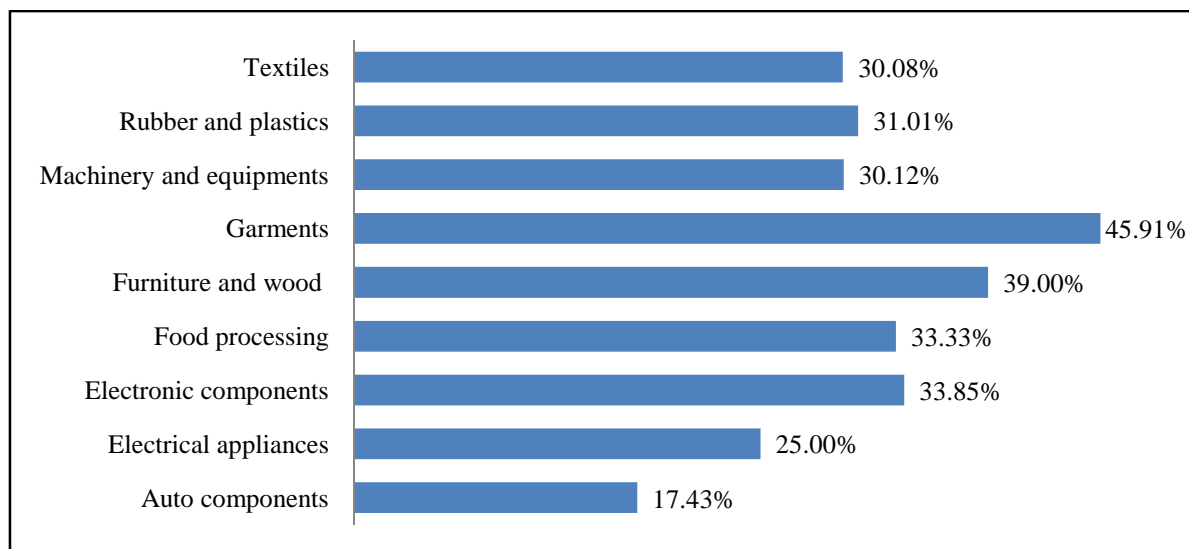


Figure 3: of Firms in Thailand with Female CEOs by Industry
Source: Computed from Thailand's Enterprise Survey (2007)

As for regions of operation, the Southern region has the highest percentage of firms led by female CEOs (40.96 percent), followed by the Central region (34.75 percent), Bangkok and vicinity (34.32 percent), the lower Northeast (33.33 percent), the North (30.00 percent), the

upper Northeast (20.00 percent), and the East (17.14 percent). Figure 4 shows the percentage of firms in Thailand with female CEOs by region.

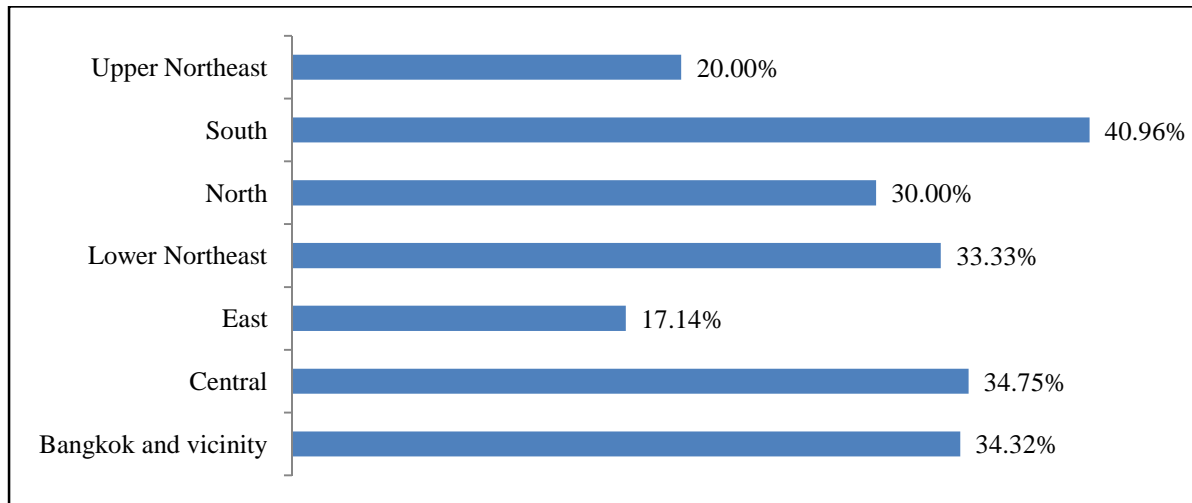


Figure 4: Percentage of firms in Thailand with female CEOs by region

Source: Computed from Thailand's Enterprise Survey (2007)

To measure the impacts of female CEOs on firm performance and development, the mean values of the independent variables were computed as shown in Table 3. According to the results in Table 3, the mean value of the industry-related experience of male CEOs (5.72) is two times higher than that of female CEOs (2.72). This fact can cause firms led by female CEOs to have poorer performance than firms led by male CEOs, because having less human capital in terms of previous relevant work experiences and business specific expertise, negatively affects the performance of the firms, as pointed out by Fairlie and Robb (2008).

As shown in Table 3, female CEOs (0.72), on average, are slightly more highly educated (having earned a college/university education) than are male CEOs (0.69). Other levels of CEO education show only slight differences between male and female CEOs. For instance, the mean values for female CEOs who earn higher vocational certificates and upper secondary/vocational certificates are 0.09 and 0.13 respectively, while the mean values of male CEOs who complete higher vocational certificates and upper secondary/vocational certificates are, respectively, 0.08 and 0.15. To further investigate the impacts of female heads on firm performances and development, other factors (such as years of industry-related experience, firm age, etc.) have to be considered.

According to the findings, the mean value of age of the firms led by male CEOs (15.87) is higher than that of firms led by women (14.08). And firm age is found to have an influence on a firm. Watson (2002) pointed that young firms tend to have lower sales and lower profits than older firms. Moreover, older firms also tend to have a larger turnover, a larger number of employees, and more capital assets (Rosa et al., 1996). Fewer years of operation reflects less experience in the industry in which a firm is operating and may cause the firm to underperform compared to firms that have been operating longer. Subsequently, the fact that women-led firms, on average, have fewer years of industry-specific experiences may cause them to have a lower level of performance and development compared to those led by men.

In terms of computer control, firms headed by women, on average, use fewer production machines that are computer-controlled (8.34 percent) compared to firms led by male CEOs (12.06 percent). As mentioned above, female-led firms were more likely to be concentrated in small-scale industries such as garments whereas male-led firms were most prevalent in heavy-capital industries such as automobiles. In general, firms with computer-controlled production machines are more likely to achieve higher productivity as production processes are programmed to be autonomous – relying less on humans who have more chances to make errors than do computers. In contrast, firms with fewer computer-controlled production machines are likely to have lower productivity since their manufacturing processes rely greatly on human operation, which is slower and less precise compared to computers. Thus, using a lower level of production technology may cause the performance of female-led firms to be lower than male-led ones.

In terms of capacity utilization, it is found that, on average, firms led by women have a higher mean value of capacity utilization (80.61 percent) than do firms led by men (76.34 percent). However, the difference is minimal. Furthermore, it is impossible to use capacity utilization to gauge the impact of female CEOs on firm performance compared to that of males since it can be the case that the maximum capacity of male-led firms is much higher than female-led companies in terms of both value and volume, since male CEOs are more likely to be involved in heavy industries than are female CEOs.

In addition, there is a minimal difference in terms of access to finance (using loan financing as proxy) among female- and male-led firms. The mean value of female-led firms that used loans as a source of financial capital is 73 percent, whereas the value of male-led firms is

0.79 percent. This finding shows that female-led firms, on average, have relatively less difficulty applying for loans compared to male-led firms. This contrasts some existing studies carried out in other countries indicating that female-led firms face more obstacles than do male-led firms in terms of access to finance (Fay & Williams, 1993; Coleman, 2000). This might be due to the fact that, in Thai society, female CEOs/entrepreneurs, in general, are more supported and encouraged by their spouses and families, who help them by providing personal assets (like a house, car, etc.) as collaterals when applying for bank loans. Thai female entrepreneurs/CEOs thus have better access to finance than do female CEOs/entrepreneurs in other countries who do not have this type of support from their spouses or families.

Table 3: Mean of independent variables

Variables	Female		Male		Total	
	Obs	Mean	Obs	Mean	Obs	Mean
ceo_colleedu	341	0.72	702	0.69	1,043	0.70
ceo_hivocedu	341	0.09	702	0.08	1,043	0.08
ceo_uppersecedu	341	0.13	702	0.15	1,043	0.14
Ceoexp	340	2.72	696	5.72	1,036	4.74
firmage	341	14.08	702	15.87	1,043	15.29
comcontrol	340	8.34	696	12.06	1,036	10.84
Caputi	340	80.61	702	76.34	1,042	77.73
Logkl	331	9.57	683	9.95	1,014	9.82
Skilled	341	0.83	702	0.97	1,043	0.92
unskilled	341	4.62	702	3.99	1,043	4.19
secondedu	341	67.77	702	67.53	1,043	67.61
Colledu	341	20.02	702	20.56	1,043	20.38
medium	341	0.36	702	0.36	1,043	0.36
Large	341	0.23	702	0.3	1,043	0.28
Border	341	0.06	702	0.07	1,043	0.07
Loan	341	0.73	702	0.79	1,043	0.77

Obs = No. of Observation

Source: Computed from Enterprise Survey (2007)

Next, controlling for industry and regional dummy variables, are estimates of the impacts of female CEOs, their characteristics, and firms' characteristics on firms' short-term financial performance, including annual sales and annual profit.

Table 4 shows estimations of female CEOs effects on firms' financial performance. Models 1, 2, 3, and 4 show that female CEOs have statistically significant negative impacts on annual sales and annual profits of firms. An analysis of the data indicates that a firm that has a female CEO tends to have a significantly negative impact on its financial performance in terms of annual sales. A firm led by female CEO will be approximately 0.38–1.2 percent lower in sales growth compared to a firm led by a male CEO. Additionally, a firm that has a female CEO tends to have approximately 0.18–0.57 percent lower profit growth compared to a firm that has a male CEO. This finding is consistent with previous research that has evidenced underperformance of female-led firms against male-led firms (Amran, 2011; Fasci & Valdez, 1998; Inmyxai & Takahashi, 2010). According to the previous data analysis, this underperformance of female-led firms may be because 1) female CEOs/top managers tend to have less experience compared to male CEOs/top managers, 2) female CEOs, on average, are more likely to be leading younger firms than are their male counterparts, 3) female-led firms tend to use less computer technology in production than do firms led by male, and 4) female CEOs are found to be more concentrated in small firms than firms of other sizes (medium and large). All these factors in turn negatively affect financial performance of firms led by women compared to those led by men.

Nevertheless, analyzing this dataset leads to an interesting point. Interaction of the variable “femceo” and “ceo_colleedu” in Model 2 shows that the negative impact of female CEOs on a firm's financial performance is lessened provided that the women have a college degree. This result is also consistent with a study by Jalbert et al. (2011) that found links between CEOs' educational background and firm performance. Moreover, this finding partially corresponds with a study by Swinney et al. (2005) that points out that, for female leaders, the reported level of performance tends to rise if they have attained a college education. However, there is currently no research that explains exactly how obtaining a college degree helps diminish the negative impact of female CEOs on firm performance. Therefore, it is necessary for future research to address this academic void.

Another interesting discovery is that female CEOs have a significantly positive influence on financial performance of small and medium firms. Particularly, the association is significant in the case of small firms. A small firm led by a female CEO tends to have 0.48–0.50 percent higher sales growth than a small firm led by a male CEO. Even though a negative relationship between a small firm with a female CEO and an annual profit of a firm is detected, the relationship is not statistically significant. In addition, a medium-sized firm led by a female CEO seems to have 0.15–0.24 percent and 0.03–0.20 percent higher sales and profit growth, respectively, compared to a medium-sized firm led by a male CEO though the relationship is not statistically significant. This finding is consistent with a study by Davis et al. (2010) that found that female-led small and medium firms tend to have better performance compared to those led by men because female CEOs tend to place greater emphasis on market orientation relative to male CEOs. Another possible explanation is that small firms in Thailand are likely to be involved in small scale industries such as foods and garments, in which Thai women, traditionally and generally, have better skills and expertise than do Thai men.

Table 4: Estimation of the Impact of Female CEOs on Firm Performance

Variables	(1)lsales	(2)lsales	(3)lsales	(4)lprofit	(5)lprofit	(6)lprofit
femaleceo	-0.378*** [0.117]	-1.191** [0.523]	-1.088** [0.547]	-0.276* [0.156]	-0.574 [0.731]	-0.177 [0.664]
ceo_colleedu	0.907*** [0.230]	0.0133 [0.235]	-0.0980 [0.206]	0.631** [0.282]	-0.0502 [0.305]	-0.303 [0.298]
ceo_hivocedu	0.715** [0.285]	-0.275 [0.275]	-0.248 [0.254]	0.153 [0.342]	-0.341 [0.381]	-0.373 [0.357]
ceo_uppersecedu	0.262 [0.256]	-0.238 [0.250]	-0.228 [0.223]	-0.200 [0.314]	-0.485 [0.340]	-0.616* [0.341]
ceo_lowersecedu	0.342 [0.292]	-0.241 [0.316]	-0.242 [0.290]	-0.434 [0.377]	-0.925** [0.414]	-1.075** [0.435]
Ceoexp	0.00788 [0.00779]	0.0124* [0.00641]	0.00994* [0.00581]	0.00178 [0.0101]	0.00318 [0.0101]	-0.000837 [0.00860]
f_x_colle_educ	-	0.684* [0.400]	-0.00423 [0.0164]	-	0.541 [0.530]	0.00911 [0.0212]
f_x_ceo_hivoceduc	-	1.392*** [0.491]	0.398 [0.436]	-	0.679 [0.662]	0.0709 [0.483]

Variables	(1)lsales	(2)lsales	(3)lsales	(4)lprofit	(5)lprofit	(6)lprofit
f_x_ceo_uppersecedu	-	0.657	1.116**	-	0.544	0.191
	-	[0.449]	[0.509]	-	[0.601]	[0.610]
f_x_ceo_lowersecedu	-	1.040	0.486	-	1.189	0.360
	-	[0.632]	[0.473]	-	[0.901]	[0.557]
f_x_ceoexp	-	-0.0151	1.223*	-	0.00477	1.407
	-	[0.0178]	[0.664]	-	[0.0244]	[0.916]
f_x_firmage	-	0.00145	0.00571	-	-0.00148	-0.00795
	-	[0.0108]	[0.00966]	-	[0.0175]	[0.0163]
f_x_small	-	0.501**	0.483**	-	-0.0130	-0.260
	-	[0.246]	[0.224]	-	[0.359]	[0.344]
f_x_medium	-	0.145	0.241	-	0.0301	0.192
	-	[0.232]	[0.208]	-	[0.372]	[0.349]
f_x_loan	-	0.120	0.184	-	0.00158	0.202
	-	[0.198]	[0.188]	-	[0.297]	[0.263]
Firmage	-	0.0151***	0.0232***	-	0.0181**	0.0283***
	-	[0.00550]	[0.00523]	-	[0.00859]	[0.00776]
Small	-	-3.093***	-2.777***	-	-2.505***	-2.068***
	-	[0.136]	[0.123]	-	[0.220]	[0.197]
Medium	-	-1.658***	-1.537***	-	-1.513***	-1.403***
	-	[0.124]	[0.109]	-	[0.211]	[0.189]
Loan	-	0.275**	0.201*	-	-0.0670	-0.277*
	-	[0.116]	[0.106]	-	[0.196]	[0.157]
comcontrol	-	-	0.00216	-	-	0.00296
	-	-	[0.00182]	-	-	[0.00265]
Caputi	-	-	0.0107***	-	-	0.0126***
	-	-	[0.00218]	-	-	[0.00334]
Logkl	-	-	0.288***	-	-	0.432***
	-	-	[0.0279]	-	-	[0.0430]
secondedu	-	-	0.00172	-	-	0.00295
	-	-	[0.00206]	-	-	[0.00354]
Colledu	-	-	0.00933***	-	-	0.0107**
	-	-	[0.00262]	-	-	[0.00434]
Border	-	-	0.327	-	-	-0.0319
	-	-	[0.242]	-	-	[0.315]

Variables	(1)lsales	(2)lsales	(3)lsales	(4)lprofit	(5)lprofit	(6)lprofit
Constant	17.84*** [0.332]	19.78*** [0.340]	15.88*** [0.431]	13.95*** [0.452]	15.71*** [0.511]	10.52*** [0.695]
Observations	1,036	1,036	999	785	785	758
R-squared	0.171	0.576	0.651	0.201	0.409	0.522

* Remarks - Robust standard errors in brackets
 - *** p<0.01, ** p<0.05, * p<0.1
 - Estimated coefficients of Regional Dummy, Industry Dummy are not shown in this table.

To investigate female CEOs’/top managers’ impacts on firms’ long-term development, reported by the marginal effect under binary probit regression, this study uses the binary probit regression model as shown in Table 5. As shown by Models 7–10, female CEOs have a negative impact on firm innovation, for which new products and introduction of technology are used as proxies. However, the relationships are not statistically significant. In Model 13, the relationship between a firm having a female CEO and the probability of its providing employee training is found to be significantly negative. Results from regression showed that a firm with a female CEO has around 0.06 percent lower probability of providing employee training compared to a firm led by a male CEO. In a similar way, female CEOs who completed college/university study are also found to have a negative effect on providing employee training. This may be explained by the fact that female CEOs are more likely to lead firms small in size, which are not likely to provide employee training due to the lack of financial and non-financial resources and because they do not see any benefits from providing such training to their employees (Robb & Watson, 2010).

Table 5: Estimation of impact of female CEOs on firm development

Variables	(8)new product	(9)new product	(10)new product	(11)new tech	(12)new tech	(13)new tech	(14)training dummy	(15)training dummy	(16)training dummy
Femaleceo	-0.0461 [0.0344]	-0.0681 [0.207]	-0.137 [0.226]	-0.0518 [0.0344]	0.174 [0.217]	0.202 [0.239]	-0.0618* [0.0338]	-0.117 [0.245]	0.0440 [0.233]
ceo_colleedu	0.155** [0.0749]	0.131 [0.0877]	0.0915 [0.0924]	0.138* [0.0765]	0.0869 [0.0961]	0.0503 [0.100]	0.367*** [0.0775]	0.256** [0.117]	0.274** [0.121]
ceo_hivocedu	0.0567 [0.0828]	0.0790 [0.0970]	0.0340 [0.106]	0.0276 [0.0963]	-0.0331 [0.116]	-0.0488 [0.119]	0.169** [0.0715]	0.0432 [0.116]	0.0758 [0.109]
ceo_uppersecedu	0.0439 [0.0783]	0.0737 [0.0898]	0.0484 [0.0970]	0.0363 [0.0880]	0.00293 [0.108]	-0.0162 [0.111]	0.132* [0.0738]	0.0819 [0.104]	0.105 [0.0993]
ceo_lowersecedu	-0.0684 [0.116]	-0.0568 [0.131]	-0.0983 [0.138]	0.0171 [0.120]	0.0685 [0.140]	0.0860 [0.140]	0.0463 [0.108]	-0.222 [0.170]	-0.228 [0.174]
Ceoexp	0.00298 [0.00234]	0.00138 [0.00270]	0.00141 [0.00274]	-4.97e-05 [0.00228]	0.00118 [0.00267]	0.00171 [0.00276]	0.00207 [0.00229]	0.00392 [0.00280]	0.00362 [0.00282]
f_x_colle_edu	-	-0.0473 [0.165]	-0.00252 [0.00676]	-	-0.0757 [0.179]	-0.0103 [0.00666]	-	0.0302 [0.185]	-0.0122* [0.00659]
f_x_ceo_hivocedu	-	-0.160 [0.202]	0.0375 [0.172]	-	-0.0165 [0.212]	-0.0993 [0.200]	-	0.0619 [0.187]	-0.0961 [0.202]
f_x_ceo_uppersecedu	-	-0.180	-0.0263	-	-0.00561	-0.0491	-	-0.00451	-0.0506

Variables	(8)new product	(9)new product	(10)new product	(11)new tech	(12)new tech	(13)new tech	(14)training dummy	(15)training dummy	(16)training dummy
f_x_ceo_lowerseced	-	[0.190]	[0.208]	-	[0.201]	[0.232]	-	[0.211]	[0.225]
u	-	-0.125	-0.0833	-	-0.343**	-0.0136	-	0.286***	-0.0807
f_x_ceoexp	-	[0.278]	[0.202]	-	[0.150]	[0.221]	-	[0.0234]	[0.227]
f_x_firmage	-	-0.00140	0.00656	-	-0.00879	-0.363**	-	-0.0128**	0.276***
f_x_small	-	[0.00656]	[0.271]	-	[0.00624]	[0.144]	-	[0.00647]	[0.0227]
f_x_medium	-	0.00610	0.00580	-	0.00160	0.00217	-	-0.00187	-0.00331
f_x_loan	-	[0.00412]	[0.00431]	-	[0.00408]	[0.00428]	-	[0.00435]	[0.00436]
Firmage	-	-0.00480	-0.0406	-	0.00206	-0.0438	-	0.117	0.101
Small	-	[0.0955]	[0.102]	-	[0.0973]	[0.101]	-	[0.0870]	[0.0922]
Medium	-	-0.127	-0.143	-	0.0524	0.0562	-	0.0671	0.0778
	-	[0.0983]	[0.101]	-	[0.0934]	[0.0974]	-	[0.0918]	[0.0914]
	-	0.0769	0.0962	-	-0.202***	-0.198**	-	0.0256	-0.00113
	-	[0.0761]	[0.0784]	-	[0.0751]	[0.0784]	-	[0.0769]	[0.0803]
	-	-0.00513**	-0.00468**	-	-0.000914	0.00142	-	-0.000272	0.00120
	-	[0.00208]	[0.00218]	-	[0.00217]	[0.00226]	-	[0.00241]	[0.00256]
	-	-0.235***	-0.210***	-	-0.308***	-0.210***	-	-0.719***	-0.712***
	-	[0.0534]	[0.0573]	-	[0.0485]	[0.0550]	-	[0.0433]	[0.0472]
	-	-0.0821	-0.0750	-	-0.164***	-0.118**	-	-0.364***	-0.363***
	-	[0.0520]	[0.0542]	-	[0.0492]	[0.0523]	-	[0.0641]	[0.0667]

Variables	(8)new product	(9)new product	(10)new product	(11)new tech	(12)new tech	(13)new tech	(14)training dummy	(15)training dummy	(16)training dummy
Loan	-	-0.0324 [0.0477]	-0.0455 [0.0495]	-	0.135*** [0.0471]	0.109** [0.0495]	-	0.101** [0.0518]	0.108** [0.0525]
comcontrol	-	-	0.00144 [0.000900]	-	-	0.00456*** [0.000942]	-	-	0.000537 [0.000889]
Caputi	-	-	0.00116 [0.000879]	-	-	0.00213** [0.000909]	-	-	0.000716 [0.000883]
Logkl	-	-	0.00253 [0.0114]	-	-	0.0293** [0.0120]	-	-	0.0319*** [0.0113]
Secondedu	-	-	8.59e-05 [0.000805]	-	-	0.00115 [0.000904]	-	-	0.000901 [0.000821]
Colledu	-	-	0.00127 [0.00110]	-	-	0.00159 [0.00116]	-	-	0.00261** [0.00117]
Border	-	-	-0.220*** [0.0846]	-	-	-0.00876 [0.0908]	-	-	-0.0817 [0.120]
Observations	1,036	1,036	999	1,036	1,036	999	1,036	1,036	999

* Remarks
 - Robust standard errors in brackets
 -*** p<0.01, ** p<0.05, * p<0.1
 - Estimated coefficients of Regional Dummy, Industry Dummy are not shown in this table.

4. Conclusions and Policy Recommendations

In order to examine the impacts of female CEOs on firm performance and development, this study uses data obtained from the firm-level survey in Thailand called PICS-2007 conducted by the Foundation for the Thailand Productivity Institute (FTPI) with technical assistance from the World Bank. Regarding firm performance, this paper uses short-term financial performance of firms, including annual sales and profits. For long-term development, an introduction of a new product and technology as well as training provision to employees is used as indicators.

Results from the Regression analysis indicate that female CEOs, relative to male CEOs, possess significantly negative impacts on a firm's financial performance, including annual sales and profits. These findings are consistent with previous literature indicating that firms led by women underperform financially compared to those led by men. According to the data, these negative effects of female CEOs on firm performance can be rationalized considering the facts that 1) female CEOs/top managers tend to have less industry-related compared to male CEOs/top managers, 2) female CEOs, on average, are more likely to be leading younger firms than are their male counterparts, 3) female-led firms tend to use less computer technology in production than do firms led by male, and 4) female CEOs are found to be more concentrated in small firms which tends to be outperformed financially medium and large firms.

Nonetheless, an interesting point on the performance of female-led firms was discovered. Female CEOs who completed higher education (college/university education) have a positive impact on firm performance. This implies that female CEOs with a higher level of education tend to contribute more to the performance of firms. Another interesting point is that female-led small firms tend to perform better than male -led small firms. This finding can be explained by the fact that female-led small and medium-sized firms tend to have better performance compared to those led by male because female CEOs tend to place greater emphasis on market orientation than do their male counterparts.

With regards to firms' long-term development including innovation and employees' training, female CEOs have a negative impact on firm innovation (introducing new products and technology). However, the relationship is not statistically significant. Moreover, female

CEOs are found to have a negative relationship with employees' training. This may be because female CEOs are more likely to lead smaller firms, which are not likely to provide employees' training due to the lack of financial and non-financial resources and because they do not see the benefits of providing such training to employees.

From these results, some recommendations regarding SME development policy in Thailand can be suggested. According to the results indicating that female CEOs have a significantly negative impact on providing employees' training, it is thus advisable that the government places more emphasis on policies that will encourage firms led by women (which are more likely to be small firms) to be more active in providing employee training to raise productivity. This can be achieved through continuous programs that are particularly designed for female-led small firms especially community enterprises in rural areas. And these firms should be encouraged to participate in the programs by designated organizations. To optimize such programs for female-led firms, it is recommended that the garment industry be made the first priority since it is the industry in which firms led by women are more likely to be operating.

There are nevertheless some limitations in this study. First, this study uses cross-sectional data, which might not lead to results that are more consistent and accurate since the results might differ if another time-frame had been selected. Moreover, the data used in this study was collected in 2007, which might not be entirely accurate in explaining the situation today.

References

- Aldrich, H. E. (Ed.). (2006). *Organizations Evolving* (2nd ed.). London: SAGE Publications Ltd.
- Aldrich, H. E., & Auster, E. (1986). Even Dwarfs Started Small: Liabilities of Age and Size and their Strategic Implications. *Research in Organizational Behavior*, 8, 165-198.
- Amran, N. A. (2011). 'The Effect of Owner's Gender and Age to Firm Performance: A Review on Malaysian Public Listed Family Business.' *Journal of Global Business and Economics*, 2(1), 104-116.
- Bardasi, E., Sabarwal, S., & Terrell, K. (2011). 'How Do Female Entrepreneurs Perform? Evidence from Three Developing Regions.' *Small Business Economics*, 37, 417-441.
- Brush, C. G., & Hisrich, R. D. (2006). Antecedent Influences on Women-Owned Business. *Journal of Management Psychology*, 6(2), 9-16.
- Chirwa, E. W. (2008). Effects of Gender on the Performance of Micro and Small Enterprises in Malawi. *Development Southern Africa*, 25(3), 347-362.
- Coleman, S. (2002). Constraints Faced by Women Small Business Owners: Evidence from the Data. *Journal of Developmental Entrepreneurship*, 7(2), 151-174.
- Cuba, R., DeCenzo, D., & Anish, A. (1983). Management Practices of Successful Female Business Owners. *American Journal of Small Business*, 8(5), 40-46.
- Fay, M., & Williams, L. (1993). Gender Bias and the Availability of Business Loans. *Journal of Business Venturing*, 8(4), 363-376.
- Fairlie, R. W., & Robb, I. M. (2009). Gender Differences in Business Performance: Evidence from the Characteristics of Business Owners Survey. *Small Business Economics*, 33(4), 375-395.
- Fasci, M. A., & Valdez, J. (1998). A Performance Contrast of Male- and Female-Owned Small Accounting Practices. *Journal of Small Business Management* 36(3), 1-7.

- Grant Thornton. (2013). Women in Senior Management: Setting the Stage for Growth: Grant Thornton International, retrieved from http://www.gti.org/files/ibr2013_wib_report_final.pdf
- Hsu, C.-S., Kuo, L., & Chang, B.-G.(2013,). Gender Difference in Profit Performance — Evidence from the Owners of Small Public Accounting Practices. *Asian Journal of Finance & Accounting*, 5(1), 140-159.
- Khan, W. A., &Vieito, J. P. (2013).CEO Gender and Firm Performance. *Journal of Economics and Business*, 67, 55– 66.
- Inmyxai, S. and Takahashi, Y. 2010. Performance Contrast and Its Determinants between Male and Female Headed Firms in Lao MSMEs. *International Journal of Business and Management*, 5(4), 37-52.
- Jalbert, T., Furumo, K., &Jalbert, M. (2011). Does Educational Background Affect CEO Compensation And Firm Performance? *The Journal of Applied Business Research* 27(1), 16-40.
- Jennings, J. E., & Brush, C. G. (2013). Research on Women Entrepreneurs: Challenges to (and from) the Broader Entrepreneurship Literature? *The Academy of Management Annals*, 7(1), 661–713.
- McPherson, M. A. (1996). ‘Growth of Micro and Small Enterprises in Southern Africa’ *Journal of Development Economics*, 48(2), 253–277.
- Peni, E. (2014). ‘CEO and Chairperson Characteristics and Firm Performance.’ *Journal of Management and Governance*, 18(1), 185-205.
- P.S. Davis, E. B., P. D. Englis,T.Pett. (2010). The Influence of CEO Gender on Market Orientation and Performance in Small and Medium-Sized Service Businesses. *Journal of Small Business Management*, 48(4), 475–496.
- Robb, A. (2008) “An Investigation of New Firm Performance by Owner Race, Ethnicity, and Gender,”, retrieved from <http://sbaer.uca.edu/research/sbi/2008/chalo3f.html>

- Robb, A., & Watson, J. (2010). Comparing the Performance of Female- And Male-Controlled SMEs: Evidence from the United States and Australia. *Frontiers of Entrepreneurship Research*, 30(8), 1-12.
- Rosa, P., Carter, S., & Hamilton, D. (1996). Gender as a Determinant of Small Business Performance: Insights from and British study. *Small Business Economics*, 8(6), 463-478.
- Sabarwal, S., & Terrell, K. (2008). *Does Gender Matter for Firm Performance? Evidence From Eastern Europe And Central Asia*: Washington, D.C.: The World Bank.
- Watson, J. (2002). Comparing the performance of male- and female-controlled businesses: Relating outputs to inputs. *Entrepreneurship Theory and Practice*, 26(3), 91-100.
- World Bank. (2012). *Toward Gender Equality in East Asia and the Pacific: A Companion to the World Development Report*. Washington, D.C.: The World Bank.

About MINZAS

MINZAS program is a partnership program of Mekong Institute and New Zealand Embassy in Bangkok. The objective of this program is to enhance research capacity of young GMS researchers by providing a structured learning and field research application program for 36 master's degree students from provincial universities in Cambodia, Lao PDR, Myanmar and Thailand.

Through a comprehensive supports – trainings, roundtable meeting, constructive advices from MI advisors including financial supports – which are to be and have been provided to scholarship grantees, students' research skills and conduction of research deem to be developed. The completed research works will be published in 'MI Working Paper Series' and disseminated to related agents among the GMS.

The MINZAS Program is designed for 3 cycles; each cycle lasts for one year with 4 phases:

- Phase One: Training on Research Methodology
- Phase Two: Implementation of Sub-regional Research in Respective Countries
- Phase Three: Research Roundtable Meeting
- Phase Four: Publication and Dissemination of Students' Works in 'MI Working Paper Series'

The research cycle involves:

- One month training course on GMS Cooperation and ASEAN Integration, research development and methodology. The students will produce their research designs and action plans as training outputs;
- Technical assistance and advisory support to MINZAS scholars by experienced mentors and academicians in the course of the research process;
- The scholars will present their research papers in a round table meeting attended by subject experts and their peers;
- Scholars will revise their research papers and improve as necessary, based on experts and peer review during the roundtable meeting;
- Publication of reports as MI working paper series.

The Mekong Institute (MI) is an intergovernmental organization with a residential learning facility located on the campus of Khon Kaen University in the northeastern Thailand. It serves the countries of the Greater Mekong Subregion (GMS), namely, Cambodia, Lao P.D.R., Myanmar, Thailand, Vietnam, Yunnan Province and Guangxi Zhuang Autonomous Region of PR. China.

MI is the only GMS-based development learning institute, chartered by the six GMS Governments, offering standard and on-demand capacity development programs focusing on regional cooperation and integration issues.

MI's learning programs services caters to the capacity building needs of current and future GMS leaders and policy makers on issues around rural development, trade and investment facilitation, human migration, with good governance and regional cooperation as cross cutting themes.

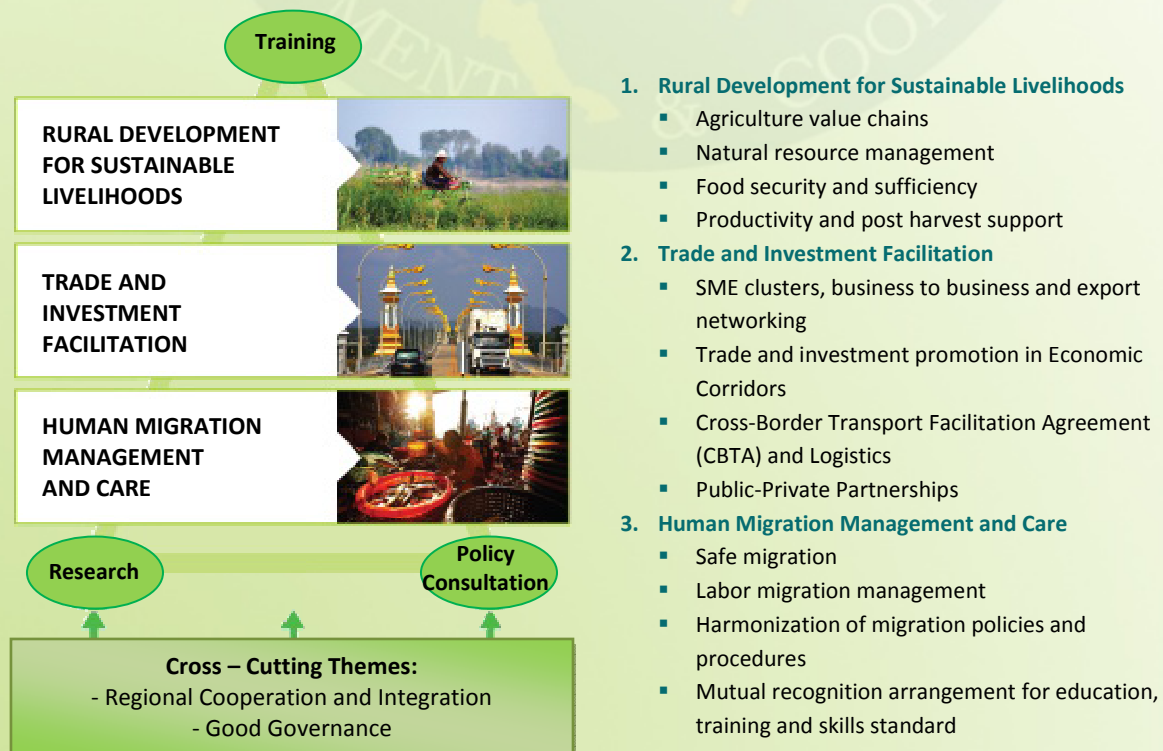
Vision

Capable and committed human resources working together for a more integrated, prosperous, and harmonious GMS.

Mission

Capacity development for regional cooperation and integration.

MI Program Thematic Areas



For more information, visit
www.mekonginstitute.org



Mekong Institute

Research Working Paper Series 2014



NEW ZEALAND
FOREIGN AFFAIRS & TRADE
Aid Programme

This publication of Working Paper Series is part of the Mekong Institute – New Zealand Ambassador’s Scholarship (MINZAS) program. A collaboration project between New Zealand Embassy in Bangkok and Mekong Institute aims to bring forth the research development within the Greater Mekong Subregion (GMS) through educational provision that will be given to 36 master’s degree students from Cambodia, Lao PDR, Myanmar and Thailand (2012 - 2014).