

CHAPTER 4

Research Results

This chapter reports the results from statistically analyzing the data of 251 respondents. As reported by AMOS, minimum sample size to examining the hypothesized model for a significant level of .05 should not less than 162 data (Hoelter 1983). Therefore, the sample size of the study is satisfactory for the examination.

This chapter is divided into four parts. The first part presents background characteristics of respondents and their enterprises. Then, the results of examining the relationships between the two orientations, including entrepreneurial orientation and collaborative orientation, and their proposed consequences are presented. Also, the result of moderating effect examination for environment uncertainty is exhibited. Finally, the results of hypothesis examinations are summarized.

4.1 Background Characteristics

The 251 respondents are owner, owner executive, and executive of small and medium enterprises in Thailand. Most of them are male and between 41 and 50 years old. The enterprises mostly are small enterprises with less than 50 employees and 50 million Baht fix asset values. Most of them operate between 5 and 10 years. Business sectors and industries are various. Their background characteristics and their enterprise information are summarized by the following:

4.1.1 Personal Characteristics

- 1) The majority of the respondents are male, accounting for 51.81 percent, while 48.19 percent are female.
- 2) The majority of the respondents, accounting for 33.47 percent, are between 41 and 50 years old. This is followed by those who are between 36 and 40 years old, and more than 50 years old, accounting for 19.83 percent, and 19.01 percent respectively.
- 3) The majority of the respondents, accounting for 47.20 percent, graduated from bachelor degree. This is followed by those who graduated from below bachelor degree, accounting for 28.40 percent.
- 4) The majority of the respondents, accounting for 70.80 percent, are owner executive. This is followed by executive and owner, accounting for 26.00 percent, and 3.20 percent respectively.
- 5) Working period in current enterprise of the majority is between 5 - 10 years. The majority respondents accounts for 46.22 percent. Those with more than 10 years and less than 5 years are 44.54 percent and 9.24 percent respectively.

The background characteristics of the respondents are presented in Table 4.1.

Table 4.1 Respondent's Background Characteristics*

		Frequency		Percent	
Gender					
	Male	129		51.81	
	Female	120	249*	48.19	100.00
Age					
	Less than 30 years	32		13.22	
	31 – 35 years	35		14.46	
	36 – 40 years	48		19.83	
	41 – 50 years	81		33.47	
	More than 50 years	46	242*	19.01	100.00
Education					
	Below Bachelor Degree	71		28.40	
	Bachelor Degree	118		47.20	
	Master Degree	59		23.60	
	Doctoral Degree	2	250	0.80	100.00
Work Position					
	Owner	8		3.20	
	Owner Executive	177		70.80	
	Executive	65	250	26.00	100.00
Working Experience in Current Enterprise					
	Less than 5 years	22		9.24	
	5 – 10 years	110		46.22	
	More than 10 years	106	238	44.54	100.0

*Incomplete data is allowed for the study because the categories are not employed for hypothesis examinations.

4.1.2 Enterprise Background Characteristics*

- 1) The majority of the enterprises, accounting for 53.39 percent, have operated their business for between 5 - 10 years, while those with more than 10 years are 46.61 percent.
- 2) The majority of the enterprises have less than 50 employees, accounting for 84.46 percent, while the more one is 15.54 percent.
- 3) The majority of the enterprises have fixed asset values less than 50 million Baht, accounting for 90.04 percent, while the more one is 9.96 percent.
- 4) The majority of the enterprises are in service sector, accounting for 38.25 percent. This is followed by wholesale and retail sector, and manufacturing sector, accounting for 33.86 percent, and 27.89 percent respectively.
- 5) The majority of the enterprises are in food and beverage industry, accounting for 27.49 percent. This is followed by those in design, fashion and decoration industry, and construction and interior industry, accounting for 15.94 percent, and 12.35 percent respectively.

The background characteristics of the enterprises are presented in Table 4.2.

Table 4.2 Enterprise's Background Characteristics

	Frequency		Percent	
Firm Age				
Between 5 – 10 years	134		53.39	
More than 10 years	117	251	46.61	100.00
Number of Employee				
Less than 50 employees	212		84.46	
50 – 200 employees	39	251	15.54	100.00
Fixed Asset Value				
Less than 50 million Baht	226		90.04	
50 – 200 million Baht	25	251	9.96	100.00
Business Sector				
Service Sector	96		38.25	
Wholesale and Retail Sector	85		33.86	
Manufacturing Sector	70	251	27.89	100.00
Industry				
Food and Beverage	69		27.49	
Design, Fashion, and Decoration	40		15.94	
Construction and Interior	31		12.35	
Industrial Product, Machine, and Material	28		11.16	
Traveling and Hotel	18		7.17	
Education, Consulting and Knowledge Services	17		6.77	
Logistics and Transportation	14		5.58	
Computer and Technology	13		5.18	
Health Care and Pharmaceutical	8		3.19	
Printing, Media and Mass Communication	8		3.19	
Accounting and Finance	5	251	1.99	100.00

According to the collected data, most of the respondents are small enterprises with less than 50 employees (84.46%) and 50 million Baht fixed asset values (90.04%). This is consistent with the fact that small enterprises in Thailand are majority. In 2012, the number of small enterprises in Thailand were 2,724,902, accounting for 99.48% of the total number of small and medium enterprises (OSMEP 2013).

For business sectors, most of them are in service sector (38.25%), following by wholesale and retail sector (33.86%), and manufacturing sector (27.89%) respectively. The proportions are slightly the same as the structure of small and medium enterprises in 2012. At the end of 2012, small and medium enterprises in service sector are 37.8 %, in wholesale and retail sector are 37.9%, and in manufacturing sector are 18.7% (OSMEP 2013). In terms of industry, the respondents are in various industries. The data therefore represents overall of Thai small and medium enterprises. Hence, it is appropriate to employ the data to empirically examine the associations of interest in the context of small and medium enterprises in Thailand.

4.2 Relationships between Business Orientations and Sustainability

From the hypothesized model, the result of the multiple regression analysis presents insignificant effect of Entrepreneurial Orientation (ETO) on Business Sustainability (BST) but significant effect of Collaborative Orientation (CLO) on Business Sustainability (BST). Standardized regression coefficient (β), p-value (p), standard error of estimation (S.E.), and composite reliability (C.R.) for the effects of business orientations on sustainability is presented in Table 4.3.

Table 4.3 Result of Multiple Regression Analysis for the Effects of Business Orientations on Sustainability

Effect			β	p	S.E.	C.R.	Note
ETO	→	BST	-.013	.876	.083	-.156	Hypothesis1 is supported
CLO	→	BST	.654	***	.111	5.905	Hypothesis2 is supported

*** significant at .001 level

Notably, the result of the regression analysis do not suggested connecting the effect of Entrepreneurial Orientation (ETO) on Economic Outcomes (ECO), Social Outcomes, and Environmental Outcomes (EVO). However, to ensure entrepreneurial effect as proposed in the theoretical framework for the study, the model is modified to empirically examine the effect of Entrepreneurial Orientation (ETO) on Economic Outcomes (ECO) and maintain collaborative effect in the model.

The result presents significant effect of Entrepreneurial Orientation (ETO) on Economic Outcomes (ECO). **Hence, hypothesis 1a is supported.**

Notably, entrepreneurial effect on Business Sustainability (BST), Social Outcomes (SCO), and Environmental Outcomes (EVO) are not suggested for modification. **Hence, hypothesis1, 1b, and 1c are supported.**

For collaborative effect, Collaborative Orientation (CLO) remains having a positive effect on Business Sustainability (BST). **Hence, hypothesis 2 is supported.** As a consequence, Collaborative Orientation (CLO) has indirect effects on the three variables for Business Sustainability (BST), including Economic Outcomes (ECO), Social Outcomes (SCO), and Environmental Outcomes (EVO). **Hence, hypothesis 2a, 2b and 2c are supported.**

For a model fit, error term of Customer Responsibility (eCTR) and the error term of Social Outcomes (eSCO) are connected as suggested statistically ($X^2/df = 243.274/159$ (1.530), $p < .001$, $GFI=.916$, $AGFI = .889$, $CFI=.965$, $IFI =.966$, $PGFI = .694$, $RMSEA =.046$). Standardized regression coefficient (β), standard error of estimation (S.E.), and composite reliability (C.R.) for the relationships between variables in the fit model are exhibited in Table 4.4.

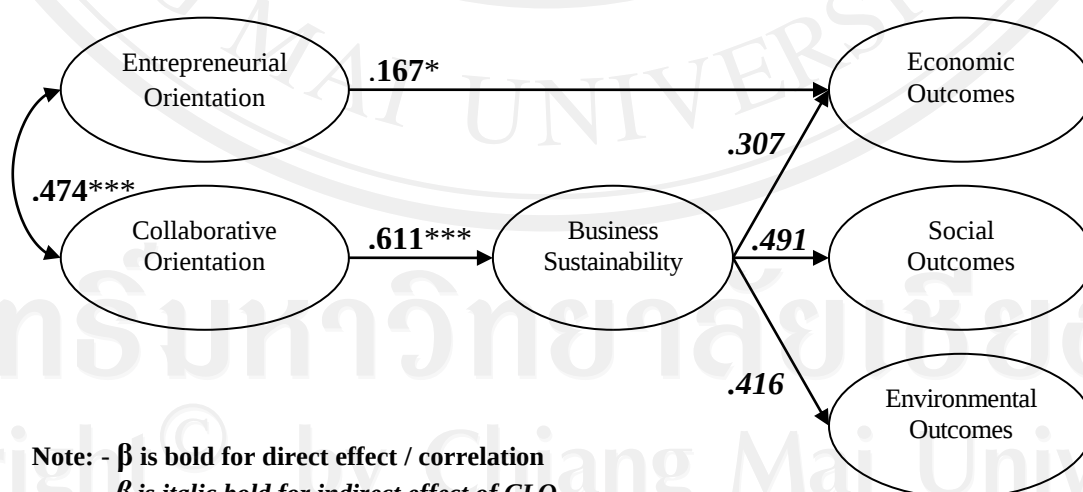
Table 4.4 Result of Multiple Regression Analysis for the Fit Model

Effect	β	S.E.	C.R.	Note
ETO → ECO	.169 *	.082	2.065	Hypothesis1a is supported
CLO → BST	.611 ***	.095	6.135	Hypothesis2 is supported
CLO → ECO	.307			Hypothesis2a is supported
CLO → SCO	.491			Hypothesis2b is supported
CLO → EVO	.416			Hypothesis2c is supported

Association	Correlation Coefficient	Covariance Estimation	Standard Error of Estimation
ETO <--> CLO	.474	.306***	.065
error term of CTR <--> error term of SCO	.634	.187***	.035
error term of EVR <--> error term of ETE	.502	.211***	.035
error term of EVR <--> error term of CTR	.168	.057**	.019
error term of s8 <--> error term of s9	.341	.224***	.054
error term of s12 <--> error term of s13	.449	.328***	.062

* Significant at .05 level, *** Significant at .001 level

In addition, the relationships of latent variables and its Standardized Regression Coefficients (β) in the fit model can be illustrated in Figure 4.1



Note: - β is bold for direct effect / correlation
 - β is italic bold for indirect effect of CLO

* Significant at .05 level, *** Significant at .001 level

Figure 4.1 Associations of Latent Variables in the Fit Model

4.3 Moderating Effects of Environment Uncertainty

Based on the fit model, the study examines the moderating effects of environment uncertainty on the relationship between entrepreneurial orientation and economic outcomes, and on the relationship between collaborative orientation and business sustainability.

Since the data was collected from various business sectors, environment uncertainty in different contexts may be varied. Therefore, the study employed One-Way ANOVA to empirically examine whether environment uncertainty is indifferent in various business sectors. From the analysis, levels of environment uncertainty in manufacturing sector ($M=5.42$, $SD=.985$), wholesale and retail sector ($M=5.67$, $SD=1.072$), and service sector ($M=5.51$, $SD=1.026$) are indifferent; Levene statistic = .141, $p = .868$; $F = 1.234$, $p = .293$. Hence, it is satisfactory to study environment uncertainty from the whole data.

Then, to prepare examining the moderating effect using multiple group analysis with AMOS, the study employed sub-group analysis to transform environment uncertainty from continuous variable into categorical variable (Baron & Kenny 1986). The data were divided into two groups, as suggested by Baron & Kenny (1986) and Sharma et al. (1981) cut off by 24.3 percent of the median of environment uncertainty (median = 5.60). 84 enterprises, accounting for 33.5 percent, were categorized in the group of low environment uncertainty (mean ≤ 5.20), and 106 respondents, accounting for 42.2 percent, were assigned in the high one (mean ≥ 6.00).

Using multiple group analysis (Hair et al. 2010, Byrne 2010), multiple regression analysis was employed in two groups of low and high environment uncertainty. The effects of Entrepreneurial Orientation (ETO) on Economic Outcomes (ECO) in the two groups are insignificant. Therefore, there is insufficient evidence to examine moderating effect of environment uncertainty on the ETO – ECO relationship. For the effect of Collaborative Orientation (CLO) on Business Sustainability (BST), the effects in the two groups are significant. From regression weight comparisons,

unstandardized regression coefficient in high environment uncertainty is stronger than in the low one but insignificantly different.

Standardized Regression Coefficients (β), Unstandardized Regression Coefficients (b), and Standard Error of Estimation (S.E.) in the groups of low and high environment uncertainty, and the regression weight comparison are presented in Table 4.5.

Table 4.5 Results of Regression Weight Comparisons between in Low and High Environment Uncertainty for Hypothesized Relationships in the Simultaneous Model

Hypothesized Relationship	Low Environment Uncertainty (n=84)			High Environment Uncertainty (n=106)			Regression Weight Comparison	
	β	b	S.E.	β	b	S.E.	t	p-value
ETO → ECO	.219	.158	.097	.108	.119	.133		
CLO → BST	.593	.508**	.162	.353	.466*	.188	.165	.869
CLO → ECO	.297	.257		.184	.319			Indirect Effect
CLO → SCO	.485	.511		.272	.304			Indirect Effect
CLO → EVO	.369	.508		.244	.466			Indirect Effect

*significant at .05 level, **significant at .01 level

Surprisingly, the effects of Entrepreneurial Orientation (ETO) on Economic Outcomes (ECO) are not significant in both low and high environment uncertainty. From the observation that the indirect effect of Collaborative Orientation (CLO) on Economic Outcomes (ECO) is stronger than the effect of Entrepreneurial Orientation (ETO), the significant effect of collaborative orientation may cover up the entrepreneurial effect in this simultaneous model.

Hence, to explain the moderating effect of environment uncertainty in each relationship separately, the simultaneous effect model was separated into a model for sole effect of Entrepreneurial Orientation (ETO) on Economic Outcomes (ECO) and a model for sole effect of Collaborative Orientation (CLO) on Business Sustainability

(BST). Then, moderating effects of environment uncertainty on each relationship were analyzed.

From the regression analysis for entrepreneurial effect on economic outcomes, environment uncertainty has a moderating effect on the relationship between Entrepreneurial Orientation (ETO) and Economic Outcomes (ECO). The relationship is significant only in low environment uncertainty but insignificant in the high one. However, it is contrary to the hypothesis 3. **Hence, hypothesis 3 is not supported**

For the effect of collaborative orientation, the regression analysis for separate model presents the same result as in the simultaneous model. The positive effect of Collaborative Orientation (CLO) on Business Sustainability (BST) is significant in both low and high environment uncertainty. The effect on business sustainability in high environment uncertainty is slightly higher than in the low one. However, the effects are insignificant different. **Hence, hypothesis 4 is not supported.**

Unstandardized Regression Coefficients (b), Standardized Regression Coefficients (β), and Standard Error of Estimation (S.E.) in the groups of low and high environment uncertainty, and the regression weight comparison in separate models are presented in Table 4.6.

Table 4.6 Results of Regression Weights Comparisons between in Low and High Environment Uncertainty for Hypothesized Relationships in the Separate Models

Hypothesized Relationship	Low Environment Uncertainty (n=84)			High Environment Uncertainty (n=106)			Regression Weight Comparison	
	β	b	S.E.	β	b	S.E.	t	p-value
ETO → ECO	.435	.352**	.121	.026	.006	.211	Full Moderation	
CLO → BST	.583	.515**	.162	.379	.511**	.192	.015	.988
CLO → ECO	.351	.315		.201	.350		Indirect Effect	
CLO → SCO	.478	.525		.287	.324		Indirect Effect	
CLO → EVO	.360	.515		.265	.511		Indirect Effect	

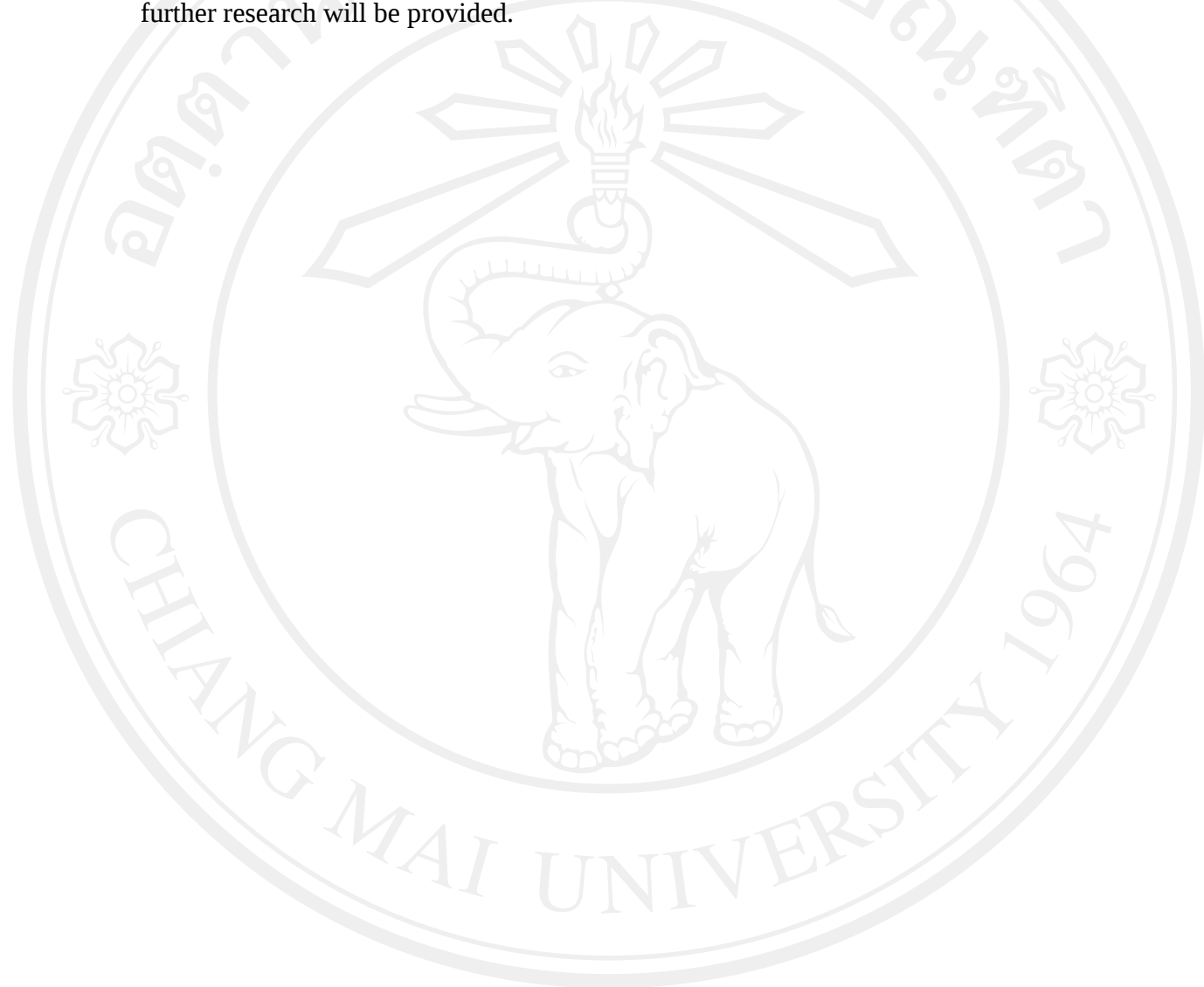
4.4 Results of Hypothesis Examinations

The study has already presented the results of statistical analyzing the relationships between the two orientations and their proposed consequences, the relationships of variables in the fit model, and the moderating effects of environment uncertainty. The results of hypothesis examination are summarized in Table 4.7.

Table 4.7 Results of Hypothesis Examinations

	Statement of Hypothesis	Result
H1	Entrepreneurial orientation insignificantly explains business sustainability.	Supported
H1a	Entrepreneurial orientation positively explains economic outcomes.	Supported
H2a	Entrepreneurial orientation insignificantly explains social outcomes.	Supported
H3a	Entrepreneurial orientation insignificantly explains environmental outcomes.	Supported
H2	Collaborative orientation positively explains business sustainability.	Supported
H2a	Collaborative orientation positively explains economic outcomes.	Supported
H2b	Collaborative orientation positively explains social outcomes.	Supported
H2c	Collaborative orientation positively explains environmental outcomes.	Supported
H3	The effect of entrepreneurial orientation on economic outcomes in the high level of environment uncertainty is stronger than in the low one.	Not Supported
H4	The effect of collaborative orientation on business sustainability in the low level of environment uncertainty is stronger than in the high one.	Not Supported

This chapter has presented background characteristics of the respondents and the results of statistical analyzing data to empirically examine hypothesis and justify theoretical framework of the study. The next chapter will conclude and discuss the results of the study. In addition, practical recommendations for small and medium enterprises will be provided. Then, Limitations of the study and recommendations for further research will be provided.



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