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DETERMINANTS OF SME SUCCESS OR FAILURE IN FRONTIER MARKETS

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ABSTRACT

SME competitiveness, financial stability, and its continuity as a going concern are important considerations for company stakeholders. This research is utilizing logistic regression to examine the determinants of SME business success or failure in Cambodia. A total of 314 successful and 78 failing SMEs were examined. Information was gathered through a survey questionnaire that had been previously validated in various countries based on the financial and non-financial information of SMEs. The study found that four factors, namely the owner's education level, owner's marketing skills, customer complaints, and the age of the business were important in determining the success or failure of SMEs. The predictive accuracy of the model was 95.5 percent, with an R-square estimation of 64 percent. Policymakers can use the results of this study to prepare and train aspirant entrepreneurs and current SME proprietors to keep proper records and maintain financial control, and develop marketing

and other skills to assist their businesses to succeed. The findings can provide insights for entrepreneurs, especially with respect to efficient resource allocations that may help avert or lessen the rate of failure among SMEs. The findings can also help strengthen the SME sector in Cambodia, by providing more employment opportunities, assisting in better income distribution, and eventually leading to long-term prosperity and competitiveness.

Keywords: Business failure, business success, logistic regression, resource-based theory, SMEs.

JEL Classification: G30, G39.

INTRODUCTION

Small businesses or SMEs are viewed as one of the essential supports to economic development in terms of creating job opportunities, enhancing indigenous skills and innovations, building market intensity, and improving the well-being of the overall population (Jahur & Quadir, 2012). Ayyagari et al. (2011) reported that 95 percent of the total businesses globally are SMEs, accounting for 60 percent of the global employment. More precisely, in the US, Germany, the UK, and France, SMEs accounts for approximately 51 to 56 percent of these countries GDP (McGowan, 2019). SMEs in the Southeast Asian region accounts for 96 percent of total businesses, with a 95 percent contribution to domestic employment and up to 53 percent contribution to the GDP (SME Corp Malaysia, 2013). For example, in Indonesia and Malaysia, the SME contribution to the GDP was 58.7 and 35.9 percent, respectively. Therefore, policymakers consider the competitiveness and success of SMEs to be of paramount importance in maintaining high employment and income generation, and achieve sustainable economic growth. Consequently, these contributions of SMEs have triggered state and regional initiatives to further strengthen the growth of SMEs around the globe (European Commission, 2013).

In this regard, Cambodia is no exemption. SMEs in the country are seen as playing an important role in creating employment opportunities, creating income for low-income households, increasing social stability, as well as economic growth and creating a competitive and a vibrant private sector. Between 2000 and 2012, the number of SMEs

has expanded by 268 percent, representing in excess of 75 percent of all established enterprises and generating 50 to 90 percent of the total employment (National Institute of Statistics (NIS), 2011; Forsinetti, 2012). There are more than 156,890 SMEs employing more than one million workers (Savi, 2019). Moreover, Cambodia's average annual GDP growth stood at around 7 percent for the past 10 years, signaling how both the economy and businesses are thriving at a steady rate. The Cambodian government through its key Rectangular Strategy has come up with and implemented a number of initiatives to further develop the SME sector and make it more competitive and vibrant in the country's continued economic development. For example, the government in 2018, introduced a decentralized SME registration platform, as well as tax exemptions, provided technical training and financial assistance to further enhance the competitive positioning of SMEs (Sokhorng, 2018). SMEs that successfully completed a tax registration (or updated their tax registration for existing SMEs) of their enterprise would receive a tax exemption for three to five years (Sokhorng, 2018).

Despite such initiatives, most of the SMEs around the world go bankrupt (Neshamba, 2006) at an early stage of their life cycle (Pena, 2004), or at the accelerated growth stage (Hayward et al., 2006). For example, an approximately 60 percent failure rate among SMEs has been reported in Malaysia (Ahmad & Seet, 2009). Studies in the UK showed an estimated 35 percent of SMEs went bankrupt after the first three years of initial start-up, and 55 percent failed after five years (Gray et al., 2012). Similarly, Australia also recorded a high failure rate of about 62 percent of the SMEs failing in the third year in business, while an estimated 74 percent of SMEs failed in the fifth year of business (Chancharat, 2011). In Nigeria, an estimated 60 to 70 percent of SMEs went bankrupt in the first three years of business (Akingbolu, 2010). Similarly, in South Africa, 63 percent of small businesses failed to pass the second year of operations (Cant & Wiid, 2013). Likewise, in Cambodia, there have been a number of SMEs that failed (at an early stage or otherwise) due to the challenges they faced in the course of their business operation.

Therefore, there is a need to further investigate the causes of the poor performance and failure of SMEs in Cambodia. The competitiveness, financial stability and going concern of the SMEs are important considerations for the company's stakeholders, including the

shareholders, financial institutions, suppliers, employees, government, customers, and society in general. Furthermore, the costs and spillover effect of business failure have a broad impact on all the stakeholders. In light of these concerns, the continuous tracking of SME performance, successful or otherwise, should be an important issue for the corporate sector. Therefore, the purpose of this research is to investigate the causes or predictors of SME success or failure in Cambodia. To date there has been no such study carried out in Cambodia, as such the present study will be the first ever attempt to determine the success versus failure factors of SMEs in the country.

This study aims to make a practical contribution, as the model put forward can be used in Cambodia to improve the performance of SMEs, as well as increasing their chances of survival. The Cambodian government is currently making efforts to enhance and develop the SME sector so that it may become a more vibrant contributor to the country's economic development. In addition, the paper aims to provide more insights for entrepreneurs, policymakers, and different stakeholders, so as to assist them through a redistribution of resources and assets that may reasonably help to eschew poor performance or failure among SMEs. The findings of the study can help to strengthen the SME sector in Cambodia. The ultimate goal is to enhance job opportunities, provide better income distribution and allocation, improve social cohesion, and in the end contribute to an increased economic growth and development.

LITERATURE REVIEW

There is lack of general theory about business failure that can help to distinguish between successful and failing firms (Dimitras et al., 1996). The selection of business failure predictors is subject to the popularity and predictive power of each predictor in previous studies. Therefore, this section provides a review of the related underlying theory used in selecting the predictors, existing empirical literature on SME business failure, and the commonly used statistical methods to predict business failure.

Resource-based Theory

The resource-based theory (RBT) was used in this study to highlight factors that could lead to the success or failure of SMEs. Wernerfelt

(1984) introduced the RBT and used the theoretical framework to identify the internal resource capabilities that could lead to the survival of firms and the achievement of sustainable competitive advantage, especially for SMEs (Ong & Ismail, 2008). These resources can either be tangible, such as assets, access to funds and location among others; or intangible, specifically in the areas of human resources which constitute knowledge and awareness, skills and expertise, customer service, reputation and status, entrepreneurial orientation, network dispositions and inspiration that allows the development of specific capabilities (Pratono & Mahmood, 2015; Wernerfelt, 1984). The concept has been broadly utilized as a hypothetical base for understanding how a firm's resources and capabilities can drive organizational performance (Crook et al., 2008). Numerous researchers have argued that it is a company's capacity to organize its resources that clarifies its performance differentials (Newbert, 2007). The theory suggests that business owners need to have explicit assets that will assist them to observe new opportunities and amass different resources so that the organizations can succeed (Alvarez & Busenitz, 2001). Lussier (1995) utilized the RBT in his 15 success versus failure elements to learn how resource-based variables add to the success or failure of a typical firm in the US. Likewise, the RBT was utilized by Thornhill and Amit (2003) to separate firms that have encountered financial distress during the early life cycle stages because of the deficiency of financial assets or lack of knowledge among the executives. Moreover, O'Cass and Sok (2013) employed the same theory to look at the degree to which the mix of marketing skills, intellectual assets and product innovation impacted the performance of SMEs.

Empirical Studies on SME Failure Prediction Models

Over the last four decades, the incidence of bankruptcy cases has led to a growing interest from researchers in business failure prediction, to the extent that it has developed into a key research area in finance. Previous studies have revolved around the search for the best failure prediction model for SMEs, focusing on financial data from both listed corporations and small businesses since the pioneering model of Altman in 1968. Altman's (1968) model used Multiple Discriminant Analysis (MDA) to predict bankruptcy among US-listed companies using financial ratios. Since then, a number of prediction models for listed companies have been developed in the literature (Altman, 1968; Beaver, 1967; Blum, 1974).

Similarly, the increasing number of business failures among small businesses in the US has motivated Edmister (1972) to adopt Altman's (1968), Beaver's (1967) and Blum's (1974) bankruptcy prediction models of listed companies. These models were based on financial data and looked for evidence among small businesses in the same market. Using 19 selected financial ratios from their studies, Edmister (1972) employed the MDA method to differentiate between failed and non-failed SMEs. He found that for the year prior to failure, seven financial variables were found to be important in forecasting business failure among small businesses. They included current liabilities to equity, equity to sales ratio, annual fund flows to current liabilities, inventory to sales ratio, working capital to sales ratio, and quick ratio to Robert Morris Associates (RMA) up-trend. The findings further implied that financial ratios are applicable to predicting the business failure of small firms. Following Edmister (1972), a number of studies have developed prediction models using financial data (see Abdullah, Ma'aji & Khaw, 2016; Altman & Sabato, 2007; Altman et al., 2020; Blum, 1974; Edmister, 1972; Keasey & Watson, 1987; Lussier, 1995; Ma'aji et al, 2019; Ma'aji et al., 2018; Ma'aji et al., 2020; Ohlson, 1980; Platt & Platt, 1990; and Zmijewski, 1983). Among the most predictable variables in these models were the leverage ratios, efficiency ratios, profitability ratios, and liquidity ratios.

Moreover, the research field has been extended by developing prediction models using qualitative data. Researchers have claimed that these models also provided a complete or integrated clarification for the failure of SMEs. Lussier (1995), for example, used non-financial data to predict failure among US SMEs, and this attempt was regarded as among the first models to utilized such variables. The model comprised 15 significant variables recognized in over 20 previous studies. The studies used non-financial variables which were examined utilizing the RBT. This has helped to broaden our understanding of the use of resources and capabilities in new firms by concentrating on the recognition and gaining of capitals and assets that are vital for a firm's long-term achievement (Lichtenstein & Brush, 2001). The findings showed that successful firms featured less troubles in getting and holding qualified staff than the unsuccessful ones. Contrary to expectations, the findings additionally showed that the unsuccessful firms had staff with more industry and work experience with board members that are well educated. Gimeno et al. (1997), Flerackers (1998), and Reynolds and Miller (1989) found

similar results regarding these variables. A possible explanation is that there is a need for a young mind and fresh ideas to be a successful entrepreneur.

Furthermore, the studies revealed that failed companies had prepared more detailed financial and other business plans than successful companies (Gimeno et al., 1997; Flerackers, 1998; Reynolds & Miller, 1989). These findings emphasized that there is a need for companies to think out-of-the-box (Houben et al., 2005; Bono & McNamar, 2011). Additionally, studies have shown that having a business partner does not increase the chance of business success and is not an indicator for business success (Cooper et al. 1991). Their model accurately estimated 81 percent of the successes and failures in the sample chosen, which was consistent with the model of Lussier (1995). Moreover, the studies of Teng et al. (2011) and Lussier and Pfeifer (2001) found that recruitment is an important predicting factor, while Lussier and Pfeifer (2001) also found that knowledge of the owner and the decision-making expertise of the board members were found to be important variables in explaining success or failure among small businesses.

The majority of academic scholars have been developing and testing failure prediction models based on SMEs in developed countries, rather than the ones in developing countries. Furthermore, fewer studies have used non-financial variables in their failure prediction studies. This is the result of the problem faced in retrieving the financial and non-financial data of small businesses (Ma'aji et al., 2019; Lussier & Corman, 1995). Furthermore, numerous small businesses are informal and cannot be found in the formal sector of the economy in frontier markets such as Cambodia. The need for non-financial indicators rests on the foundation that the use of financial factors are the sole indicators of organizational achievement and performance (Behr & Guttler, 2007). The use of financial factors such as ratios in failure prediction research has gained lots of deliberation within the finance literature as the financial indicators are mostly highlights of firms' past performance. Consequently, the prediction models based on financial variables might not be appropriate for the future (Lussier & Corman, 1995; Keasey & Watson, 1987). Therefore, the use of historical accounting principles may impact on the reliability of the failure prediction models since there is a propensity for managers to manipulate the information, more so in the case of small businesses,

where there is often a lack of comprehensive and efficient internal control mechanisms (Agarwal & Taffler, 2007).

The limited evidence available would seem to suggest that the fundamental causes of business failure among small businesses in Cambodia are numerous, and any concerned stakeholder attempting to predict which companies are more susceptible will have to depend on a broad set of information on which to support his/her forecast. In sum, this will consist of governance, industry specific information, macroeconomic lead indicators, and quality of management, as well as ratios relating to the specific company, all of which are expected to enhance understanding of factors determining small business success or failure.

METHODOLOGY

Financial and non-financial information about small businesses in developing countries is difficult to access (Lussier & Corman, 1995; Ma'aji et al., 2019) and furthermore, a number of these firms are not registered as in the formal sector. Therefore, data was collected as part of a comprehensive survey questionnaire, used previously and validated in different regions and countries, to gather financial and non-financial information (Lussier, Bandara, & Marom 2016; Lussier & Pfeifer, 2001; Lussier, 1995; Lussier, 2005; Lussier & Halabi, 2010; Gyimah et al., 2019). The selection of businesses used in this research followed the definition provided by the Sub-committee of the SME Secretariat of the Royal Government of Cambodia (RGC). The Sub-committee of the SME Secretariat has classified Cambodian SMEs into four categories (see Table 1), namely micro, small, medium and large enterprises. These SMEs are categorized based on total assets, excluding land and building and the number of staff in the business. This study has employed a random sampling method in order to choose the sample of SMEs, it is a method that is regularly utilized in firm-level research (Carrero-Morales, 2015; Ma'aji & Barnett, 2019).

Furthermore, a total of 565 questionnaires were administered to entrepreneurs and managers of businesses. A cover letter was attached to each questionnaire sent as an overview of the objective of the study. It also guaranteed the confidentiality of the evidence provided by each respondent. It must be noted that the Cambodian business community is not used to this type of survey due to the culture of secrecy embedded

among businesses. The questionnaires were presented in person and appointments were scheduled in advance in order to improve the response rate and to guarantee business owners understood all of the questions raised. A total of 427 questionnaires were completed, resulting in a response rate of 76 percent. However, 35 of the responses were incomplete. Thus, only 392 of the responses were usable for the research, of which 314 (80%) were from firms classified successful and 78 (20%) classified as failing firms. Moreover, the combined sample of successful and failing SMEs were taken from Phnom Pehn, the capital city of Cambodia. More specifically, 20 percent (78 firms) was from the micro category, 40 percent (157 firms) from the small category, 25 percent (98 firms) from the medium segment and 15 percent (59 firms) from the large category as per the definition of the RGC's Sub-committee of the SME.

Table 1

Definition of SMEs

Categories	No of Employees	Assets excluding land (USD)
Micro	Less than 10	Less than 50,000
Small	11 – 50	50,000 – 250,000
Medium	51 – 100	250,000 – 500,000
Large	Over 100	Over 500,000

Note. Sourced from the RGC's Sub-committee on SME Secretariat, 2005 and 2007.

Analysis Model and Variables

Logistic regression was employed to assess the model based on a dummy dependent variable. Logistic regression is best utilized in situations where the observed result for a dependent variable can have only two likely outcomes, and in the case of this study a successful or failing firm. The prediction model used in this study is as follows in Equation (1):

$$Z_i = \beta'x_i + u_i \tag{1}$$

Where:

Z_i = failing if Z_i > 0; successful otherwise

x_i = Capital; Financial record and financial control; Working capital; Management experience; Professional advice; Educational level; Business planning; Leadership skills; Product/service timing; Customer complaint; Marketing skills; Age of firm; Under-skilled

labour; Government support; Infrastructure condition (see definitions in Appendix 1)

u_i = error term

Z_i ranges from $-\alpha$ to $+\alpha$

The probability and likelihood function for failing can be defined as follows in Equation (2):

$$P_i = E(Y = 1 / x_i) = \frac{1}{1 + e^{-(\beta'x_i + u_i)}} \quad (2)$$

A logistic distribution function is represented by Eqn.(2). If P_i represents the probability of failing as given in Eqn. (2), then $(1-P_i)$ would be the probability of success, as is shown in Equation (3):

$$1 - P_i = \frac{1}{1 + e^{Z_i}} \quad (3)$$

The company was classified as failing if the calculated probability from the logistic model was more than 0.5; otherwise, it was considered successful.

Variable Measures

Dependent Variable

The study used dichotomous variables of success or failing as dependent variables. It followed the method of using profitability as a measure of success or failure for the reason that at the time of executing this study, Cambodia do not have any bankruptcy law for determining bankruptcy, or any government agency to document bankrupt businesses. The use of profitability as a determinant of firm success or failure is used by many researchers. Researchers have categorized an SME as “successful” if the level of the current profit is the same as the industry average profit or above the industry average profit, and a business is categorized as “failing” if the current level of profit is below the industry average profits, or the business is currently making losses from operations (Lussier & Pfeifer, 2001; Gyimah et al., 2019; Guzman & Lussier, 2005; Halabi & Lussier, 2010; Hyder & Lussier, 2016). On a scale of 1 to 4, the owner of a firm, or the respondents were asked to select their level of profit, 1 – positive profit for more than 10 years, 2 – positive profits for 2 to 5 consecutive years, 3 – Unpredictable profits/losses, and 4 – currently not making profits. A dummy variable was created, and respondents

that chose 1 and 2 were coded as 0, representing “successful SMEs,” and respondents that chose 3 and 4 were coded as 1, representing “failing SMEs”.

Independent Variables

For the 15 independent variables, the age of the firm and length of management experience were considered ratio measurement, while capital, financial records and financial control, business planning, working capital, use of professional advice, leadership skills, educational level, product/service timing, marketing skills, customer complaints, under-skilled labour, government supports and infrastructure conditions were all measured on a 5-point Likert scale.

Statistical Analysis

The study used three levels of statistical analysis. Firstly, a descriptive examination was carried out to understand the mean differences of the variables used in the samples. Then, diagnostic tests were carried out, such as the multicollinearity test (i.e., the Pearson correlation examine the association that exists between the independent variables and the strength of their linear association). Lastly, the model was run using logistic regression model, employing success or failing as the dependent variable in relation to the 15 independent variables.

ANALYSIS OF RESULTS

Descriptive Statistics

Table 2 summarizes the statistics of all the independent variables for both successful and failing SMEs. A mean difference test was conducted between both the successful and failing SMEs, and the findings were found to be in line with the expectations of the study. There were, however, significant differences between the characteristics of both the successful and failing SMEs. The results showed that WCap, MgEx, PrAd, Educ, Mrkt, CuCm, BAge and Gvst were significantly different at the 1 percent level. Furthermore, the variable Uskl was significantly different at the 5 percent level, while the Ldsk was significantly different at the 10 percent level. However,

the difference between the Frfc, Capt, Bpln, Psti and InfC variables were insignificant.

Table 2

Descriptive Statistics

Variables	Healthy firm		Unhealthy Firm		Sig.
	Mean	Std. Dev	Mean	Std. Dev	
Frac	4.4222	0.6530	4.2143	0.6820	0.611
WCap	3.7222	0.7499	4.0000	1.3969	0.002***
Capt	3.9111	1.0238	3.5238	1.0178	0.461
MgEx	25.244	11.188	7.9762	2.9918	0.000***
Bpln	3.6699	1.1548	3.4676	1.1227	0.233
PrAd	3.6111	0.9081	3.9286	0.7775	0.006***
Educ	2.7889	0.9656	2.1905	0.3974	0.000***
Ldsk	3.8111	0.9349	3.9048	0.7262	0.063*
Mrkt	3.6333	1.0648	2.8095	0.6713	0.000***
CuCm	3.2925	1.3648	2.0948	0.7861	0.000***
Psti	3.2468	1.2111	2.3242	1.2219	0.570
BAGE	15.289	8.1364	6.0952	2.5164	0.000***
Uskl	3.5556	0.9494	3.4524	0.7715	0.047**
Gvst	4.3111	0.7289	4.1429	0.3542	0.000***
InfC	1.8333	0.6910	1.7143	0.7083	0.435
N	314		78		

Note. *, **, *** significant at the 10 percent, 5 percent and 1 percent levels, respectively. Capital (Capt), Financial record (Frac), Working capital (WCap), Management Experience (MgEx), Business Plan (Bpln), Professional Advisors (PrAd), Education level (Educ), Leadership Skills (Ldsk), Product/Service Timing (Psti), Marketing skills (Mrkt), Customer complaint (CuCm), Business age (BAGE), Under-skilled labour (Uskl), Government support (Gvst), Infrastructure condition (InfC). Number of observation (N).

Overall, the mean comparison between the two groups suggests that SMEs with tight working capital control, greater management experience, the presence of a professional adviser, whose owners had marketing skills prior to starting their business, have effective and efficient communication with customers, with more than seven years of operation and adequate government support have a better chance of success. Moreover, SMEs with a skilled workforce and a demonstration of strong leadership skills from the top management have a greater chance of success.

Table 3
Pearson Correlation Analysis

	VIF	Frfe	WCap	Capt	MgEx	Bpln	PrAd	Educ	Ldsk	Mrkt	CuCm	Psti	BAge	Uskl	Gvst	InfC
Frfe	1.748	1														
WCap	1.496	-0.4450	1													
Capt	1.348	-0.0225	-0.0390	1												
MgEx	2.519	0.272*	-0.1654	0.1116	1											
Bpln	1.160	-0.0229	-0.0305	0.1307	0.0793	1										
PrAd	1.163	-0.1495	0.0934	-0.0425	-0.206	0.0498	1									
Educ	1.310	0.0639	0.1129	0.1079	0.200*	0.0685	-0.1619	1								
Ldsk	1.442	-0.3480	0.0525	0.0300	-0.0582	0.0020	-0.0403	0.0960	1							
Mrkt	1.821	0.240**	-0.0275	0.347**	0.381**	0.0680	-0.0582	-0.0963	-0.308**	1						
CuCm	1.351	0.270**	-0.1436	-0.0655	0.319**	0.0167	-0.0548	0.0791	-0.0068	0.301**	1					
Psti	1.271	0.209*	-0.1678	0.0625	0.262**	0.211*	-0.1475	0.1388	-0.187	0.194*	0.172*	1				
BAge	3.016	0.1359	-0.0272	0.0196	0.486**	0.0586	-0.1119	0.257**	-0.0703	0.259**	0.284**	0.235**	1			
Uskl	1.233	0.0055	-0.1522	0.1042	0.0540	0.0831	0.0569	-0.0615	0.0878	0.177*	0.203*	0.0933	-0.0305	1		
Gvst	1.462	0.339**	-0.293	0.1298	0.1457	0.246**	-0.207	0.0776	-0.173	0.202*	0.1406	0.316**	0.0175	0.1368	1	
InfC	1.256	-0.0392	-0.0667	0.204*	0.0729	0.1242	0.0153	0.191*	0.197*	0.0109	0.0446	0.0157	0.0363	-0.1579	-0.1040	1

Note. *, **, *** significant at the 10 percent, 5 percent and 1 percent levels, respectively. Capital (Capt), Financial record (Frac), Working capital (WCap), Management Experience (MgEx), Business Plan (Bpln), Professional Advisors (PrAd), Education level (Educ), Leadership Skills (Ldsk), Product/Service Timing (Psti), Marketing skills (Mrkt), Customer complaint (CuCm), Business age (BAge), Under-skilled labour (Uskl), Government support (Gvst), Infrastructure condition (InfC). Number of observation (N).

Pearson correlation test was utilized to examine the connection between the independent variables and the outcomes of the test are as shown in Table 3. The results reveal that the association between the variables is moderately low, ranging from 0.0020 to 0.486. To additionally confirm that multicollinearity is not an issue in this research, variance inflating factor (VIF) was accounted for in Table 4. In the event that a variable is having a VIF of more than 10, or the tolerance result is lower than 0.10, then there is the problem of multicollinearity in the study (Gujarati & Porter, 2003). However, since in this study all the independent variables had VIF values ranging from 1.160 to 3.016, as is shown in Table 3, the results suggest that there was no multicollinearity problem in the study.

Validity and Reliability of the Model

Table 4 presents the model parameter estimates from the logistic regression. The Hosmer and Lemeshow (H&L) test is a statistical test showing how well the logistic regression models fit. The H&L test is commonly employed to answer questions about how well and sound the model fit the sample data. Based on this study, the model did fit the sample data, since the observed and expected event rates in the sub-groups were similar, which indicated that the model is reliable.

Furthermore, the H&L Chi-square of 0.2924 and p-value 0.743 implied that the models fitted the data. Correspondingly, the logistic regression results examining the model chi-square was 109.749, with the model's significance level at less than 0.01 (p-value = 0.000). Consequently, the results supported the model's sound validity as it can classify a group of SMEs as "successful" or "failing" more precisely than random guessing by 99 percent. The Cox & Snell R Square was 0.66, signaling that the model is able to predict 66 percent of the variability in the scores. The model classified correctly 307 out of the 314 successful SMEs, accounting for 97.8 percent, and 74 out of the 78 failing SMEs correctly, representing 95.2 percent, with an overall classification rate of 97 percent. Therefore, the results support the model's ability to predict successful or failing SMEs in Cambodia. Due to the model's high predictive value, it will be able to correctly predict an SMEs as successful or failing by 97 percent most of the time, compared to 50 percent of the time for a random model.

Table 4

Logistic Regression Model for Cambodia

Model parameter estimates variable name	Model Coefficient	Odds Ratio	Wald	Sig.
Constant	16.8099	1976%	2.1398	0.144
Frac	-0.2760	-24.1%	1.748	0.283
WCap	0.6690	95.2%	1.3308	0.080*
Capt	-0.2213	-19.9%	0.1323	0.716
MgEx	-0.1698	-15.6%	0.4184	0.518
Bpln	-0.6742	-49.0%	1.1655	0.280
PrAd	1.0412	183.3%	1.1866	0.276
Educ	-1.9394	-85.6%	2.6924	0.004***
Ldsk	0.2802	32.3%	0.0685	0.794
Mrkt	-2.2710	-89.7%	3.6619	0.050**
CuCm	-1.0314	-64.3%	3.3588	0.067*
Posts	-0.0188	-1.9%	0.0010	0.975
BAGe	-0.7757	-54.0%	6.9903	0.008***
Uskl	0.7641	114.7%	0.5633	0.453
Gvst	-0.1407	-13.1%	0.0149	0.903
InfC	-0.2149	-19.3%	0.0347	0.852
Model Test Results				
-2 Log likelihood	23.755			
Model Chi-square	109.749			
Model Significance	0.000			
Cox & Snell R Square	0.66			
Hosmer and Lemeshow Test	0.2924			
Classification Result				
<i>Correctly Classified Cases</i>				
Healthy	97.8%			
Unhealthy	95.2%			
Overall	97.0%			

Note. *, **, *** significant at the 10 percent, 5 percent and 1 percent levels, respectively. Capital (Capt), Financial record (Frac), Working capital (WCap), Management Experience (MgEx), Business Plan (Bpln), Professional Advisors (PrAd), Education level (Educ), Leadership Skills (Ldsk), Product/Service Timing (Psti), Marketing skills (Mrkt), Customer complaint (CuCm), Business age (BAGe), Under-skilled labour (Uskl), Government support (Gvst), Infrastructure condition (InfC). Number of observation (N).

Reduced Model for Cambodia

The most significant variables that the study was able to distinguish between successful SMEs from failing ones was at the 90 and 95 percent

confidence interval from the logistic regression model (see Table 5). These variables were working capital (t-value, $p = 0.080$), owner's education level (t-value, $p = 0.004$), owner's marketing skills (t-value, $p = 0.050$), customer complaints (t-value, $p = 0.067$) and the age of the business (t-value, $p = 0.008$). However, based on the significant variables in Table 4, the study ran another logistic regression analysis using only those variables. The results shown in Table 6 indicates that only four variables are significant determinants, namely Educ, Mrkt, CuCm, and BAge. Thus, the reduced model's function for Cambodia can be expressed as:

$$Z_i = \beta (\text{Educ}, \text{Mrkt}, \text{CuCm}, \text{and BAge})$$

As shown in Table 6, the H&L chi-square is 5.518 and the p-value is 0.701 for the reduced model, which still implied that the models fitted the data. Additionally, the logistic regression model chi-square is 131.43 with the model's significance level less than 0.01 ($p\text{-value} = 0.000$). Consequently, the results supported the reduced model's sound validity, as it can classify a group of SMEs as "successful" or "failing" more precisely than random guessing by 99 percent. The Cox & Snell R Square was slightly reduced to 0.64, signaling that the model is able to predict 64 percent of the variability in the scores. The model classified correctly 300 out of the 314 successful SMEs, accounting for 95.6 percent, and 74 out of the 78 failing SMEs correctly, representing 95.2 percent, with an overall classification rate of 95.5 percent. Overall, the reduced model too has the ability to predict successful or failing SMEs in Cambodia. The model is able to correctly predict an SMEs as successful or failing by 95.5 percent most of the time, compared to 50 percent of the time for a random model.

Table 5 presents the odds ratio for the significant variables. The odds ratio measures the relationship between an exposure and an outcome. The odds ratio describes the chances that a result will happen given a particular exposure, contrasted with the odds of the result occurring without that exposure. At the point when logistic regression is estimated, the regression coefficient (b_1) is the estimated increase in the log odds of the result per unit increase in the value of the exposure. All in all, the exponential function of the regression coefficient (e^{b_1}) is the odds ratio associated with a one-unit increase in the exposure (Szumilas, 2010).

Table 5

Logistic Regression Reduced Model for Cambodia

Model parameter estimates variable name	Model Coefficient	Odds Ratio	Wald	Sig.
Constant	16.164	1046%	12.832	0.000***
WCap	0.585	79.5%	2.175	0.140
Educ	-1.568	-79.2%	4.443	0.035***
Mrkt	-2.001	-86.5%	7.389	0.007**
CuCm	-0.898	-59.3%	3.530	0.060*
BAge	-0.683	-49.5%	8.565	0.008***
Model Test Results				
-2 Log likelihood	30.697			
Model Chi-square	134.43			
Model Significance	0.000			
Cox & Snell R Square	0.639			
Hosmer and Lemeshow	0.701			
Test p-value				
Classification result				
<i>Correctly Classified</i>				
<i>Cases</i>				
Healthy	95.6%			
Unhealthy	95.2%			
Overall	95.5%			

Note. *, **, *** significant at the 10 percent, 5 percent and 1 percent levels, respectively. Capital (Cap), Financial record (Frac), Working capital (WCap), Education level (Educ), Marketing skills (Mrkt), Customer complaint (CuCm), Business age (BAge).

In terms of the owner’s education (Educ), the odds ratio showed that businesses that start with an owner having a higher level of education has an increased chance of success by 79.2 percent. In other words, there is a 79.2 percent likelihood that a business will be healthy or successful if the owner has a higher education when he/she established the business. For marketing skills (Mrkt), the clarification could be that for each additional score towards marketing skill, the odds of “successful” (which is coded 0) will increase by 86.5 percent. Meaning that there is an 86.5 percent chance that businesses will be healthy or successful when the owners have marketing skills. The odds of customer complaints (CuCm) is 59.3 percent, which implies that there is a 59.3 percent likelihood that businesses that receive

customer complaints most of the time have a greater chance of being healthy or successful. The result for business age (BAge) shows that there is a 49.5 percent likelihood that younger businesses are more prone to not being successful.

Individual Variables in the Model

The findings show that education (Educ) is negatively associated with business failure. The findings also show that business owners with higher education when they setup their business have a more likelihood of being successful than owners without higher education. Individuals that have a higher education have acquired a certain amount of knowledge and set of skills, and have acquired capabilities that help personal development in certain professions which might help them to better manage their businesses, hence increasing their chance of being successful. A high level of education can allow for the necessary intellectual skills that can empower an individual to better appraise business opportunities during the course of business operations, which could lead to higher productivity and efficiency (Davidsson & Honig, 2003; Gauthier, 2006; Jiménez et al., 2015). Furthermore, business owners with higher education tend to be more confident, thus helping their exploration of entrepreneurial activity, while reducing risks which are the traits of being a successful entrepreneur (Jiménez et al., 2015). This finding is consistent with the tenets of human capital theory that have proposed that human capital contributes to business success (Becker & Rosen, 1992). Firms are inclined to expand investments in human capital development in order to enhance performance outcomes of employees, which in return can lead to the firm's growth (Unger et al., 2011).

Furthermore, the marketing skills (Mrkt) of a business owner were negatively and significantly related to business failure at the 5 percent level. The results revealed that entrepreneurs with marketing skills are more likely to be successful compared to business owners without them. Marketing skills and capabilities can help develop a business sense that reacts to market developments and changes, such as changes in consumer taste and preferences, competitors' moves, and technological changes. These, in turn, can enable businesses to leverage on their capabilities and resources for value creation and successfully anticipate customer's potential needs. According to Habtoor and Alharbi (2020), this will help companies avoid surprises

from new waves of market rivalry based on new technological trends, change in consumer preferences and value propositions. This finding was also consistent with that in previous studies (Habtoor & Alharbi 2020; Bharadwaj et al., 1993; Narver & Slater 1990), which found that marketing skills gives organizations the capacity to generate satisfactory information about rival activities and responses, and can draw on sufficient intelligence to counter the action of competitors. This allows businesses to deliver superior customer value, which in turn helps develop the basis for a competitive advantage (Porter, 1985).

Additionally, customer complaints (CuCm) were negatively related to businesses failure and was significant at the 1 percent level. The findings show that businesses that received customer complaints most of the time have more chances of being successful than firms that received fewer customer complaints. When a customer's complaint highlights a problem, whether about the firm's product, employees or internal processes, the company can investigate and solve the problem and thus, prevent further complaints in the future. Frequently debated anecdotally is the fact that for every one complaining customer, there are possibly many more other customers with the similar issue, but stay quiet (Plymire, 1991). Accordingly, studies have found that customers whose complaints were handled quickly can often turn into loyal customers and even brand advocates. Customers who have a complaint handled quickly go on to spend more on future purchases, thereby increasing the probability of success for the company (Habtoor & Alharbi 2020; Bell & Luddington, 2006; Bell & Mengüç 2002; Brodie et al., 2011; Groth et al., 2001; Lockrey, 2015). Through taking care of customer complaints productively, businesses can grow and develop in fulfilling and satisfying customers beyond their expectations, which could lead to repeat sales and subsequently can prompt the flourishing of business operations and overall performance.

The age of a business (BAge) has a negative coefficient and significance at the 1 percent level. The finding indicates that younger businesses are more likely to be unhealthy compared with older ones, thus, the longer the existence of an SME, the higher the chances are for it to be successful, probably because older SMEs have more experience and management capabilities (expertise). Older firms are more likely to tap into the appropriate customer segment and deliver differentiated

products and services that meet the expectations of customers, and this will subsequently help them gain further customer loyalty and build up a better rapport with suppliers (Majumdar, 1997). Long established companies are more likely to have a competitive advantage and resource capabilities in their development stages as they grow, while young companies are expected to suffer a lack of sufficient resources and capabilities (Thornhill & Amit, 2003). Additionally, success can be as a result of a firm's activities over the years. For example, mergers, absorptions, evolution from being micro, small, medium to large may happen over a number of years. These situations can be quite common given the nature of the SME business. Previous studies also find that the business age is negatively associated with bankruptcy (Abdullah et al., 2016; Altman et al., 2010; Ma'aji et al., 2018; Ma'aji et al., 2020; Shane, 1996).

CONCLUSION

Issues relating to SMEs and failure prediction have been the focus of many scholarly and regulatory debates around the world. This is the result of the significant role of SMEs in overall economic development and sustainability. Consequently, early recognition and understanding of risks leading to business failure is imperative for instituting, sustaining, and growing a business, as well as for the economy in general. Business owners need to recognize the risks associated with failure and attain the resources and capabilities identified in this study in order to enhance their chance of being successful. In summary, the results from this study indicate that long established SMEs that handle customer complaints in a timely manner, have owners who possess higher education and strong marketing skills, and have a tight control over the working capital, have a better chance of success in Cambodia. These findings are significant, for the reason that they can help entrepreneurs, management, policymakers and regulators, financial institutions, business consultants and advisers and investors to better understand how a business in Cambodia can succeed and evade failure.

The research limitations in this paper include the fact that Cambodia does not have a database on failed or bankrupt businesses. Therefore, the level of profitability of firms was utilized to order to categorize

firms as either successful or failing. Despite the fact that it was incredibly hard to find failed business owners and get them to honestly complete the survey, future study would be more robust if information from firms that have failed or gone bankrupt can be gathered, and then matched them with successful firms. Moreover, although the present study included various industries, it did not discuss their different characteristics separately. Future studies ought to consider each sector or industry independently when predicting business success or failure, in order to find out sector specific determinants and which industries are more prone to failure in Cambodia.

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Appendix 1: Lussier (1995) Model of 15 Variables

Variables	Type	Questions
Capt	Financial indicators	Businesses that start undercapitalized have a greater chance of failure than firms that start with adequate capital.
Frac	Financial indicators	Businesses that do not keep updated and accurate records have a greater chance of failure than firms that do.
WCap	Financial indicators	Businesses with insufficient business resources (finance, raw material or finished product, equipment) have a greater chance of failure than firm's sufficient resource.
MgEx	Management indicators	Businesses managed by people without prior management experience have a greater chance of failure than firms managed by people with prior management experience.
Bpln	Management indicators	Businesses that do not develop specific business plans have a greater chance of failure than firms that do.
PrAd	Management indicators	Businesses that do not use professional advisors have a greater chance of failure than firms using professional advisors. A more recent source of professional advisors is venture capitalists
Educ	Management indicators	Owners without higher education who start a business have a greater chance of failing than owners with higher education
Ldsk	Management indicators	Businesses with insufficient domain of leadership skills from top management have a greater chance of failure than firms with.
Psti	Market competition indicators	Businesses that select products/services that are too new or too old have a greater chance of failure than firms that select products/services that are in the growth stage.
Mrkt	Market competition indicators	Business owners without marketing skills have a greater chance of failure than owners with marketing skills.
CuCm	Market competition indicators	Businesses that received customer complaints most of the time have a greater chance of failure than firms that received less customer complaint.
BAge	Market competition indicators	Younger business has a greater chance of failing than older businesses.

(continue)

Variables	Type	Questions
Usk	Environment indicators	Shortage of skilled people in the area made it difficult to obtain a qualified employee and contributed to the failure of business.
Gvst	Environment indicators	Lack of financial support in the area made it difficult to gather sufficient capital and contributed to the failure of businesses.
InfC	Environment indicators	Inadequate infrastructure conditions where the business was located made it difficult to transport for consumer to buy goods.

Noted: Capital (Capt), Financial record (Frac), Working capital (WCap), Management Experience (MgEx), Business Plan (Bpln), Professional Advisors (PrAd), Education level (Educ), Leadership Skills (Ldsk), Product/Service Timing (Psti), Marketing skills (Mrkt), Customer complaint (CuCm), Business age (BAge), Under-skilled labour (Uskl), Government support (Gvst), Infrastructure condition (InfC)