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The Effect of Business Incubator Graduation Policy towards the Performance of Entrepreneurs in the Early Start-Up Companies in Malaysia with the Moderating Effect of Risk-taking Propensity

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Abstract

The objective of this study is to investigate the impact of business incubator graduation policy on the performance of entrepreneurs in the early start-up companies in Malaysia with the moderating role of risk-taking propensity. The target respondents were entrepreneurs who graduated from business incubator in Sabah, Sarawak, Johor, Selangor, Kuala Lumpur and Penang. A total of 121 valid questionnaires were used for analysis in this paper. The data were analysed using Partial Least Squares (PLS) within the Structural Equation Modelling (SEM) technique. The results show that graduation policy has a significant positive effect on the performance of entrepreneurs in the early start-up companies. However, risk-taking propensity has no moderating role between graduation policy and the performance of entrepreneurs in the early start-up companies in Malaysia. The findings of the study's outputs may serve as guidelines for the Malaysian policy makers and government agencies as well as business incubators to have a better picture of entrepreneurs in business incubators in Malaysia. The results obtained can also be used by other researchers as guidelines for their future research in the same field of study. Discussion and limitation of the study is elaborated further.

Keywords: Business incubator, Graduation policy, Risk-taking propensity, Performance of entrepreneurs, Early start-ups companies

1. Introduction

Early start-up development is an unstable, challenging, and complicated phase that is compulsory to be withstand by early start-up in the industry (Pena, 2004). Therefore, this stage has become one of the most important phases for entrepreneurs in the early start-up due to the concerning increase in failure rate over the years (Pena, 2004). In lieu of Malaysia context, an alarming trend of increase in failure rate is apparent in the first five years between early start-up (Ahmad & Seet, 2009). The failure rate among early start-ups is 60 percent and the government needs to pay more attention to this issue (Nordin, Hamid, & Woon, 2011) (Chong, 2012) (Husin & Ibrahim, 2014). As of year 2017, information released by Companies Commission of Malaysia (2021), 48,454 companies closed in Malaysia, compared to only 29,841 the year before.

Thus, the business incubator was developed as a contemporary approach in supporting the early start-ups (Hackett & Dilts, 2004). Statistics show that 87 percent of early start-up companies that have graduated from business incubator still manage their businesses which is a positive indicator for early start-up (National Business Incubation Association, 2007). Nevertheless, there are early start-ups that are not able to run their business and fall out of their business (Saffar, 2007). One of the factors for this is the inadequacy of components in business incubator that is responsible to aid to early start-ups performance (Bergek & Norrman, 2008). According to Hong and Lu (2016), concerns have been raised about whether incubator components have a positive impact on early start-up performance. The appropriate indicator for the time frame used to study the survival and success of early start-up is three years after graduating from business incubator (Rogova, 2014). Hence, this study therefore examines the pertinent components, namely graduation policy and the moderating effect of

risk-taking propensity that affect the performance of entrepreneurs in early start-up companies that have graduated three years from business incubator.

There is insufficient literature work towards the study of entrepreneur's characteristics while in business incubator that are associated with business performance (Pena, 2004). Business incubator provides resources that are considered important to early start-ups (Lai & Lin, 2015) which foster start-ups and their entrepreneurial characteristics (Dee, Livesey, Gill & Minshall, 2011) (Lewis, Harper-Anderson, & Molnar, 2011) (McAdam & Marlow, 2007) (Smilor & Gill, 1986). The ability to take risks is one of the entrepreneur's characteristics that is effective for the process of planning and achieving goals, especially when it comes to the process of decision-making (Ridzwan, Muhammad, & Rahman, 2017). Consequently, according to previous study done, the components in business incubator help entrepreneurs to acquire better judgement in taking risk which may improve their performance reflectively through the increase of survival rate.

1.1 Objectives

This paper was conducted with the following objectives:

1. To investigate if graduation policy have positive impacts toward the performance of entrepreneurs in the early start-up companies in Malaysia.
2. To examine the moderating role of risk-taking propensity on the relationship between graduation policy and the performance of entrepreneurs in the early start-up companies in Malaysia.

2. Literature Review

2.1 The Performance of Entrepreneurs in the Early Start-up Companies

The dependent variable of this study is the performance of entrepreneurs in the early start-up companies. There are two strategic outcomes used in the literature to indicate the performance of entrepreneurs, which are success and failure of entrepreneurs in the early start-up companies (Eniola & Entebang, 2015). The performance of entrepreneurs is measured by whether the goals planned by early start-up companies is acquired successfully or otherwise (Mabhungu & Van Der Poll, 2017). Moreover, entrepreneurial performance is studied to measure the well-being of early start-up companies over the years (Eniola & Entebang, 2015). Consequently, performance is considered a key priority for entrepreneurs in early start-up companies (Usama & Yusoff, 2018). The theory applied for this study is Resource Based View (RBV) theory whereby resources is deemed to significantly influence company's performance (Barney, 1986; Dierickx and Cool, 1989; Grant, 1991; and Wernerfelt, 1984). When early start-up company enters business incubator, it may be equipped with adequate resources, but when they graduate from business incubator, they are expected to perform in the industry. New Technology Based Firm (NTBF) that receive resources from business incubator for their firms that result to identical action and performance as suggested by RBV theory (Löfsten and Lindelöf, 2005).

2.2 Graduation Policy

The exit policy for business incubator is the graduation policy, which serves as an indication that early start-up companies should leave business incubator when they are established rather than nascent and no longer need incubation from business incubator because they have outgrown the space and maximum time requirements and have managed to reach mutually agreed milestones (Al-Mubaraki & Schröl, 2011) (Al-Mubaraki & Busler, 2010) (Bergek & Norrman, 2008). Consequently, graduation policies are employed as conditions by early start-ups as guideline to exit business incubator and subsequently enter the industry. Time allocated for exiting business incubator is within three to five years after entrepreneurs manage to enter business incubators (European Commission, 2002). Being assisted by business incubators may provide relief to entrepreneurs, but after a certain period they have to leave and enter the industry independently after a period of time. Entrepreneurs are expected to be independent within three to five years of joining an incubator and withdraw from it themselves (Bergek & Norrman, 2008) (European Commission, 2002). It is crucial for entrepreneur to be independent rather than being dependent to business incubator's support after a while (Robinson & Stubberud, 2014).

Hypothesis 1. (H1): Graduation policy positively impacts the performance of entrepreneurs in the early start-up companies in Malaysia.

2.3 Risk-taking Propensity

The moderating variable is risk-taking propensity where it is employed to determine the strength of the relationship between graduation policy and entrepreneurs' performance in their early start-up. Individual is perceived as unique by several factors and one of them is the characteristics of the individual. Decision making is a process that is compulsory for entrepreneurs and in line with this, entrepreneurs need to undertake reasonable risk related which is known as risk-taking propensity (Salleh & Ibrahim, 2013) (Begley, 1995). Every individuals have risk-taking propensity but some are able to take a higher level of risk while the rest may not (Salleh & Ibrahim, 2013). Entrepreneurs and risk have long been associated with each other, that indicates their ability to recognise their strengths and weaknesses as they lead their companies to success. A previous study discussed that risk is not a main determinant to assess entrepreneurs that decide on the amount of funds needed for investment, but risk is identify by the ability of entrepreneurs to recognize their weaknesses when faced with challenging tasks and handling responsibilities (Rekha, Ramesh & Jaya Bharathi, 2014). Entrepreneurs when being compared to the general society are more resilient towards risk (Gentry & Hubbard, 2004) (Xu & Ruef, 2004). Furthermore, entrepreneurs are more composed when they encounter difficulties which indicate the high tendency in taking risk as compared to non-entrepreneurs (Begley & Boyd, 1987). It shows the differences between entrepreneurs and non-entrepreneurs, whereby they are more susceptible towards risk when it is related to the strategies as well as performance of their companies.

Hypothesis 2. (H2): Risk-taking propensity strengthens the relationship between graduation policy and the performance of entrepreneurs in the early start-up companies in Malaysia.

3. Methodology

3.1 Research Design

The quantitative and deductive approach is employed for this paper. To identify the relationships between all of the variables, cross-sectional survey design was adopted as the primary data (Ansar, Karim, Osman, & Fahmi, 2019) in addition to systematic sampling under probability sampling method. In order to achieve the objectives of this paper, online survey method is used as the data collection tool.

3.2 Population and Sampling

For this study, sample of study was drawn from states with the most business incubator such as Selangor, Kuala Lumpur, Sabah, Sarawak, Penang, and Johor. These participants consist of entrepreneurs who have graduated from public business incubator in Malaysia for the past three years. The representative states are in different parts of Malaysia, which in turn are divided into two regions, the East, and the West of Malaysia (Sidin, Zawawi, Yee, Busu, & Hamzah, 2004). It is further explained that Northern region comprises the state of Penang, Central region consists of Kuala Lumpur and Selangor, Johor state allocated to the Southern region while Sabah and Sarawak constitute the East Malaysia region. All six states were selected based on their strategic location and economic development (Sidin et al., 2004). In addition, SME Corp, Malaysia (2022) has identified the six states as having the highest number of public business incubators in Malaysia. Thus, these six states are eligible as representative of the general population of Malaysia as they cover all regions of the Malaysian population.

As for the sample of size of respondents, the G*Power 3.1 software package was employed in this study to calculate the required minimum sample size (Faul, Erdfelder, Buchner, & Lang, 2009). The effect size parameters applied in this paper using G*Power was (0.15) (medium), alpha (α) 0.05 with the power of (1-β) 0.95 (maximum), and it involved two predictors (Joseph F. Hair, Jr., Ringle, & Sarstedt, 2014). Hence, the optimum sample that has been calculated by G*Power based on the precursor parameters for this study is 89 participants from the entrepreneurs who had graduated three years from the public business incubator in Malaysia. As this study manage to acquire 121 respondents, the sample size is sufficient in accordance with G*Power which is commonly used in research related to business studies.

3.3 Variables Measurement

The Performance of Entrepreneurs in the Early Start-up Companies: The measurement for entrepreneurs' performance was adapted from Solymossy, (1998). Six items used as measurement to assess the performance of entrepreneurs. Previous studies have pointed out the difficulties in obtaining objective data from small private firms in most countries (Seawright, Bell DeTienne, Preston Bernhisel, & Hoopes Larson, 2008; Wales, Patel, Parida, & Kreiser, 2013). Therefore, perceived financial performance is used to measure the entrepreneurs' performance as the data for objective performance is private and confidential. Entrepreneurs in start-up companies were approached and asked to measure their company's performance through subjective measures after one to three years they have graduated from

business incubator. According to previous studies, entrepreneurs' subjective measures are in correlation with objective performance data (Dess & Robinson, 1984) (Kellermanns & Eddleston, 2006) (Love, Priem, & Lumpkin, 2002) (Venkatraman & Ramanujam, 1987) (Zacca, Dayan, & Ahrens, 2015).

Graduation Policy: For graduation policy, the measurement items employed was from (Al-Mubaraki, Busler, & Aruna, 2013). The measurement consists of eight items that were used to assess the graduation policy adopted by entrepreneurs when leaving business incubator after they manage to fulfil certain requirement. Acquiring high score is viewed as an indication that entrepreneur's performance in the early start-ups may enhanced with graduation policy.

Risk-taking Propensity: For risk-taking propensity, the measurement was adapted from the works of Salleh & Ibrahim, (2011). There are nine items as measurement under risk-taking propensity and the study employ Likert scale ranging from 1 (Strongly disagree), 2 (Disagree), 3 (Neither), 4 (Agree), and 5 (Strongly agree) as an evaluation for the degree of risk-taking propensity of each of items.

3.4 Data Analysis Method

The statistical methods employed in this study were Statistical Package for the Social Sciences version 22.0 (SPSS 22.0) and Smart Partial Least Squares 2.0 (SmartPLS 2.0). This study used SPSS 22.0 to measure the frequency of each variable. Next, this study utilized the partial least square structural equation modelling (PLS- SEM) as the preferred method tool of statistical analysis. PLS-SEM can be applied when the research objective is to predict relevant constructs (Hair, Hult, Ringle, & Sarstedt, 2016). Based on this reasoning, the objective of this study is indeed parallel with the objective of PLS-SEM, which is to predict business incubator components that impacts the performance of entrepreneurs in the early start-up companies in Malaysia. Thus, the PLS-SEM techniques were selected to analyse the research model via SmartPLS 2.0 software. This study embedded a two-stage approach, namely measurement model assessment and structural model assessment (Anderson, & Gerbing, 1988), which reflect the adequate way to report PLS-SEM outcomes (Vinzi, Chin, Henseler, & Wang, 2010).

4. Results and Discussion

4.1 Profile of Respondent

A total of 121 respondents' profile was presented in Table 1 based on the demographic information in the questionnaires. Approximately 46.3 percent of the respondents were in the age range of 20 to 29 years old, 26.4 percent in the age range of 30 to 39 years old, 15.7 percent in the age range of 40 to 49 years old, and the remaining 11.6 percent were 50 years old and above. The analysis of the respondents' information reveals that more than half of the respondents were female which were 52.1 percent while 47.9 percent of the remaining were male. Next, as for the level of education, 28.1 percent of the respondents held an Upper Secondary, 20.7 percent qualified a Master's Degree, 18.2 percent possessed a Bachelor's Degree, 17.4 percent held a Diploma, 6.6 percent possessed a PhD and Vocational School

respectively and 2.5 percent passed the Lower Secondary.

Table 1. Profile of Respondents

Demographic Variables	Categories	Frequency	Percentage (%)
Age	20-29 years old	56	46.3
	30-39 years old	32	26.4
	40-49 years old	19	15.7
	50 years old and above	14	11.6
Gender	Male	58	47.9
	Female	63	52.1
Level of Education	Lower Secondary	3	2.5
	Upper Secondary	34	28.1
	Vocational School	8	6.6
	Diploma	21	17.4
	Bachelor's Degree	22	18.2
	Master's Degree	25	20.7
	Ph.D.	8	6.6
	Total	**121**	**100.0**

4.2 Measurement Model

The first stage of data analysis in PLS-SEM is an analysis of the measurement model. As such, the convergent validity and discriminant validity are assessed in the measurement model (Hair, Hult, Ringle, & Sarstedt, 2016). Convergent validity evaluates by using indicator loadings, composite reliability (CR), and average variance extracted (AVE) (Hair, Hult, Ringle, & Sarstedt, 2016). As recommended by Hair, Hult, Ringle and Sarstedt, (2016) the scores for loading, AVE, and CR must exceed 0.6, 0.5, and 0.7, respectively. Table 2 tabulates that all scores for loading, AVE, and CR exceeded the recommended Figures. Hence, it can be seen that the convergent validity for the measurement model was acceptable. Table 3 displays the square roots of AVE for the constructs along the diagonal, which seemed larger than the correlations shared between the constructs. Thus, discriminant validity was achieved.

Table 2. Loadings, Average Variance Extracted (AVE) and Extracted Composite Reliability (CR)

Construct	Measurement Item	Loadings	AVE	CR
Graduation Policy	Graduation2	0.603	0.552	0.895
	Graduation3	0.701		
	Graduation4	0.622		
	Graduation5	0.779		
	Graduation6	0.794		
	Graduation7	0.858		
	Graduation8	0.807		
Performance of Entrepreneurs	Performance1	0.733	0.644	0.899
	Performance2	0.68		
	Performance4	0.867		
	Performance5	0.866		
	Performance6	0.847		
Risk-taking Propensity	Risk10	0.703	0.511	0.879
	Risk12	0.734		
	Risk3	0.651		
	Risk5	0.738		
	Risk6	0.774		
	Risk7	0.772		
	Risk9	0.616		

Note: Risk14, Risk15, Risk1, Risk2, Risk13, Risk4, Performance3, Graduation1, Risk11 and Risk8 were deleted due to low loading of 0.524, 0.485, 0.533, 0.547, 0.578, 0.569, 0.592, 0.594, 0.615 and 0.627.

Table 3. Discriminant Validity of Measurement Model

	Graduation Policy	Performance of Entrepreneurs	Risk-taking Propensity
Graduation Policy	0.743		
Performance of Entrepreneurs	0.588	0.802	
Risk-taking Propensity	0.61	0.519	0.715

Note: The diagonals represent the square root of the AVE, while the off-diagonals represent the correlations

4.3 Structural Model Assessment

After determining the measurement model, the next stage of data analysis in PLS-SEM is to examine the structural model. As suggested by Hair et al. (2016) the aspects of beta, T-Value,

R2, effect sizes (f2), and predictive relevance (Q2) should be incorporated in order to assess the structural model. Table 4 summarizes the outcomes of the structural model analysis (hypotheses testing). The results showed that graduation policy (H1) (=0.432, p<0.01) has positively significant effect towards the performance of entrepreneurs in the early start-up companies.

The outcomes presented in Table 4 indicate that the interaction effects of risk-taking propensity strengthens the relationship between graduation policy (H2) toward the performance of entrepreneurs in the early start-up companies were insignificant, thus signifying nil moderating effect being observed.

The R2 increased to 0.019 after the moderator interactions were integrated into the model, which resulted in a change of 38.7 percent. The effect size, f2, of graduation policy toward the performance of entrepreneurs in the early start-up companies appeared to have none effect (Cohen, 1988). In addition, the predictive relevance of the model was assessed by using the blindfolding procedure. According to Fornell and Cha (1994), if Q2 values exceed 0, the model is said to have sufficient predictive relevance. In this study, the Q2 value was 0.231, which is greater than 0, and thus, the predictive relevance was confirmed.

Table 4. Results of the Structural Model (Hypotheses Testing)

H	Relationship	Std. Beta	Std. Error	t-value	Decision	f2	Q2	R2
H1	Graduation Policy -> Performance of Entrepreneurs	0.432	0.103	4.185**	Supported	0.191	0.231	0.368
H2	Graduation Policy * Risk-taking Propensity -> Performance of Entrepreneurs	0.025	0.067	0.376*	Not Supported			0.387
H3	Risk- taking propensity -> Performance of Entrepreneurs	0.256	0.115	2.224		0.067		

Note: t-values > 1.65*(p<0.05); t-values > 2.33** (p<0.01)

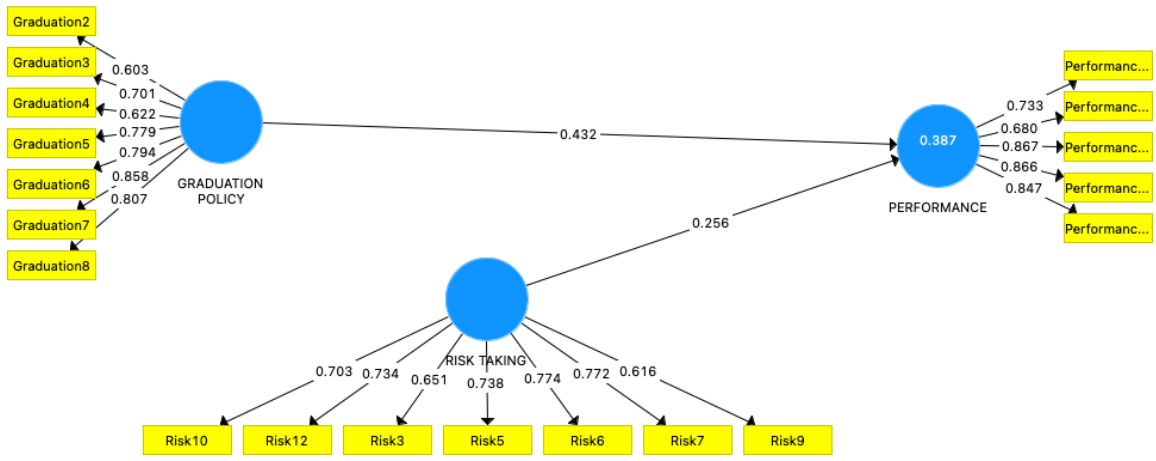

Figure 1. Path Coefficients of Graduation Policy, Risk-taking Propensity and the Performance of Entrepreneurs in the Early Start-up Companies

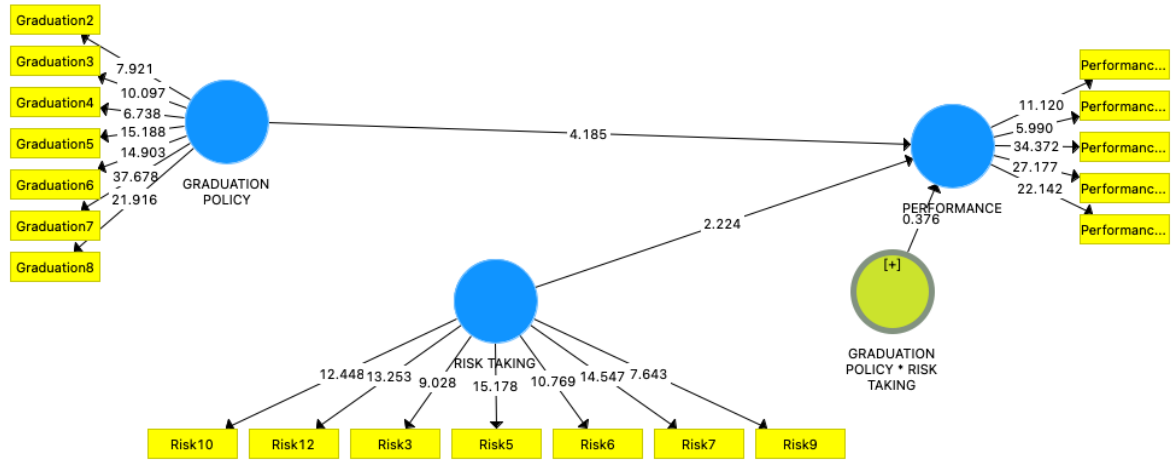

Figure 2. Bootstrapping of path coefficients of coefficients of Graduation Policy, Risk-taking Propensity and the Performance of Entrepreneurs in the Early Start-up Companies

5. Discussion

The result of this study shows that H1 is accepted, indicating that there is a positive relationship between graduation policy and entrepreneurs' performance in early start-up companies within Malaysia. This is consistent to past study that had similar finding in terms of graduation policy from business incubator acting as the key to entrepreneurs' performance in early start-up companies (Bergek & Norrman, 2008). Thus, it is gathered that entrepreneurs who had gone through business incubator process and manage to graduate have better performance than entrepreneurs who are not dependent to business incubator. Previous study explained that independent companies are companies that have utilise services offered by business incubator and manage to graduate upon exiting (Aurmo, 2010). Moreover, these companies are able to survive and experience growth with increase in their performance after leaving business incubator.

Evidently, the findings of this study stipulate that risk-taking propensity as a moderating role does not have any effect to the relationship between graduation policy (H2) and entrepreneurs' performance in early start-up companies in Malaysia. However, this is contrary to the findings of previous studies that risk-taking propensity have different effects on business incubator components (Smilor, 1987) (Akcomak & Taymaz, 2004) (Salleh & Ibrahim, 2013) (Begley, 1995). Although entrepreneurs have successfully graduated from business incubator, entrepreneurs may not take appropriate risk in relation to their business processes, especially in relation to the decision-making process.

6. Limitations

The data in this study was collected from a sample of entrepreneurs who had graduated three years from business incubator in Malaysia. Since business incubators in Malaysia are offered by both public and private organizations, a similar study could be conducted focusing on either a public or private business incubator as a comparison between the resources offered

by both firms. In addition, this study focuses on the performance of entrepreneurs in early start-up companies in Malaysia but does not include insights an insight from business incubator operators. Therefore, the study can be conducted from the perspective of a business incubator operator for future research. Furthermore, a quantitative approach was used to examine the effect of business incubator components on the performance of entrepreneurs in early start-up companies in Malaysia. Future research may consider a mixed methods approach.

7. Recommendations

In regards to the current findings, it is recommended that graduation policy provided by business incubator have to be considered to aid to information needs as well as educating entrepreneurs in early start-up companies in Malaysia. For Malaysian government and the policy makers, the findings of this study are beneficial to serve as a guideline in assisting these entities to formulate preferred actions to identify priorities needed by entrepreneurs and discover the path to provide and enhance the components for business incubator. Furthermore, the outcome gathered from this study may bolster the government and public's confidence in regards to the implementation of business incubator's objective since it is funded by public's tax. By getting a hold of the result of this study that indicates the benefit of business incubator to entrepreneurs, government and public may feel relieved. Aside from that, entrepreneurs have the tendency to watch their company grow and be established rather than just portrayed as nascent company. Hence, the existence of business incubator may act as an aid to entrepreneurs as they go through business incubator process which helps cater to entrepreneurs' needs especially when they are feeling lost or unsure of their strategy while eventually leads entrepreneur to graduate from business incubator. In other words, business incubator needs to be equipped and be efficient in assisting entrepreneurs to graduate otherwise there will be waste of resources and time. In addition, future researchers may expand their study on other business incubator components such as selection process and infrastructure. This new angle may provide other insights to other components that is relevant to the performance of entrepreneurs in early start-up companies in Malaysia.

8. Conclusion

This study unfold business incubator components specifically on graduation policy and its effect to the performance of entrepreneurs in early start-up companies in Malaysia (Kuala Lumpur, Selangor, Sabah, Sarawak, Johor and Penang) with risk-taking propensity as its moderating effect. The findings highlight on graduation policy and its significant positive effect towards the performance of entrepreneurs in the early start-up companies in Malaysia. In spite of that, the moderating role of risk-taking propensity between graduation policy and the performance of entrepreneurs in the early start-up companies in Malaysia does not have significant effect. Furthermore, the contribution from the findings is also garnered to the body of knowledge aiding to business incubators academic literature. The literature involve the development of components for business incubator that is deem as a crucial part to the performance of entrepreneurs in the early start-up companies and beneficial to the business environment in Malaysia. In addition, future researchers may also gain from this study to

motivate them to carry out more studies in this distinct subject in Malaysia.

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