

## **ACKNOWLEDGEMENT**

I praised God who has blessed me with many things especially the unexpected opportunity to pursue this Doctoral degree. I believe HE has opened so many doors for me to meet the kind-hearted people that has guided and assisted me throughout my dissertation journey. While I initially had so many doubts, I found solace and confidence in my prayers and from word of encouragement from the following main individuals that have provided constant support throughout this journey:

My first gratitude goes to my wife, Julyani Tanamal and my two sons, Michael Adelyus and Nathaniel Adelyus. They have not only been very supportive and understanding but also provide comfort when times I was about to give up. They allowed me to spend time away from them to focus only my research and dissertation ratings. I hope this journey would motivate my sons on the importance of the education and age is mere numbers when you want to do something meaningful for your life. I also thank my mother, Jie Fong Hwa and my siblings for their prayers and support directly and indirectly as they mean a lot to me.

I want to extend my appreciation to my main promoter Prof. Dr. Ir. Sugiarto, M.Sc. He has taught me many things especially on the statistical in general and Multiple Discriminant Analysis in specific. Without his assistance, it would have been impossible for me to perform data analysis with proper statistical technique. Prof. Sugiarto has always been responsive whenever I needed his advices including sacrificing his personal time for me to consult on my dissertation.

I am also very grateful to my co-promoters, Gracia Shinta S. Ugut, MBA., PhD and Dr. Drs Edison Hulu, M.E. Dr. Ugut was the key reason that I decided to join DRP program of Universitas Pelita Harapan (UPH) as she explained the overall approach and how I would fit in despite my shortcomings. I also learned a lot from her especially on the financial aspects of my dissertation and has provided constant support and reminders throughout my journey. Dr. Ugut has always demanded the best from all students which drove me to give my best . Dr. Edison has been very key in my research as I learned most of financial theories from his classes having come from non-financial background. He was the one who directed me to the right direction towards my topic around investability prospect score and has been always available for our weekly discussion. Dr. Edison has given so much encouragement and sincere support, something that has been very valuable towards my journey.

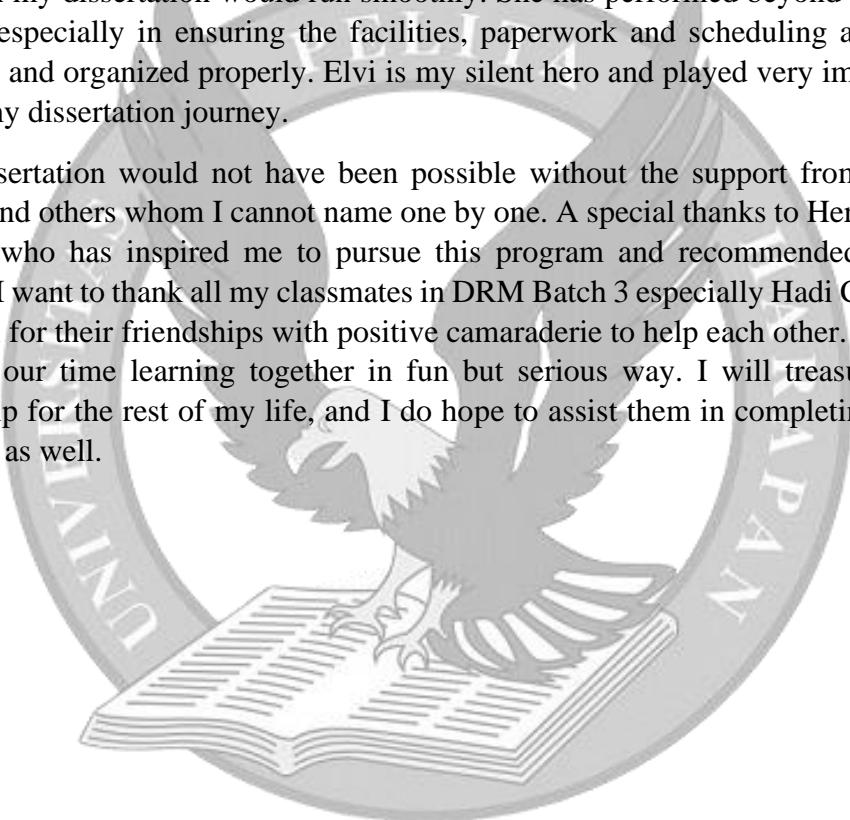
For the external committee, Prof. Ir. Roy Sembel, MBA., Ph.D., Prof. Akhmad Syakhroza, S.E., MAFIS., Ph.D, Khoirunurrofik, S.Si, M.A.,MPM, Ph.D, Meydison Ginting, Ph.D, Tarsicius Sunaryo, Ph.D and Dony Abdul Chalid, Ph.D, many thanks for your precious time and effort to participate in series of defences and in guiding me through your kind feedbacks that can only improve my dissertation. I also would like to call out Dr. Pauline H. Pattyranie Tan, M.Si for

her great leadership in leading DRM defense events and her continuous support and very encouraging advices and prayers.

I also would like to extend my special gratitude especially to Nalin Singh and Mehak Arora from Indonesia Fund Festival (IFF). They have not only agreed to assist me in the survey but extended their special assistance in getting the original survey and back testing surveys to be completed within very short timeline. I cannot proceed with my research and finishing my dissertation without their great support. Thank you for being great friends in this journey.

In this opportunity, I would like to specially extend my greatest appreciation to Elviana Yoke Watopa for her support in making sure everything around my study and even my dissertation would run smoothly. She has performed beyond her call of duty especially in ensuring the facilities, paperwork and scheduling are well prepared and organized properly. Elvi is my silent hero and played very important role in my dissertation journey.

This dissertation would not have been possible without the support from many friends and others whom I cannot name one by one. A special thanks to Hermawan Sutanto who has inspired me to pursue this program and recommended UPH. Finally, I want to thank all my classmates in DRM Batch 3 especially Hadi Cahyadi and Ardi for their friendships with positive camaraderie to help each other. I really enjoyed our time learning together in fun but serious way. I will treasure this friendship for the rest of my life, and I do hope to assist them in completing their program as well.



## Table of Contents

CHAPTER I INTRODUCTION .....	1
1.1.    Research Background .....	1
1.2.    Research Objectives.....	7
1.3.    Research Questions.....	8
1.4.    Research Benefits.....	11
1.4.1.    Practical Benefits .....	12
1.4.2.    Theoretical Benefits .....	13
1.5.    Writing Systematic.....	14
CHAPTER II LITERATURE REVIEW.....	16
2.1.    Relevant Grounded Theories .....	16
2.2.    Startup Definitions .....	19
2.3.    Variables/Constructs Concept.....	21
2.3.1.    Digital Startups Characteristics.....	21
2.3.2.    Startups ecosystem in Indonesia context.....	22
2.3.3.    Investability Prospect.....	27
2.3.4.    Common Startups Valuation Formula .....	30
2.3.3.1    Discounted Cash Flow (DCF) Method .....	31
2.3.3.2    Real Options Method .....	34
2.4.    Hypotheses.....	39
2.4.1.    Industry Structure.....	42
2.4.2.    Product maturity.....	44
2.4.3.    Founders' Background and Management team of the startup.....	45
2.4.4.    Financial Robustness.....	47
2.4.5.    Risk Management .....	49
CHAPTER III RESEARCH METHOD .....	51
3.1.    Research Model .....	51
3.2.    Research Objects.....	54
3.3.    Unit of Analysis .....	55
3.4.    Research Type.....	58
3.5.    Variables Operationalization.....	59
3.6.    Population and Samples .....	70
3.6.1.    Data Source .....	71

3.6.2.    Samples Selection Procedure .....	71
3.7.    Data Collection Method .....	76
3.8.    Data Analysis Method.....	78
3.8.1.    Descriptive Statistic Analysis .....	79
3.8.2.    Inferential Statistic Analysis .....	79
3.9.    Validity and Reliability Tests .....	82
3.9.1.    Validity Testing.....	83
3.9.2.    Reliability Testing.....	83
<b>CHAPTER IV RESEARCH FINDINGS AND DISCUSSION.....</b>	<b>85</b>
4.1.    Research Findings.....	85
4.1.1.    Profile of the Respondents .....	89
4.1.2.    Description of Research Construct .....	90
4.1.3.    Data Research Analysis .....	102
4.1.3.1.    Outer Model .....	102
4.1.3.2.    Hypotheses Test .....	104
4.1.3.3.    Inner Model.....	108
4.2.    Discussion.....	123
4.2.1.    Descriptive Discussion.....	123
4.2.2.    Cross Tabulation .....	129
4.2.3.    Robustness Test.....	137
<b>CHAPTER V CONCLUSION AND RECOMMENDATION.....</b>	<b>148</b>
5.2.    Conclusion .....	148
5.2.1.    Investability Prospect Score.....	148
5.2.2.    Back Testing Procedure .....	151
5.3.    Managerial Implications .....	153
5.4.    Limitation and Proposal for Future Research .....	156
<b>APPENDIX-I RESEARCH INSTRUMENTS .....</b>	<b>174</b>
<b>APPENDIX-II TEST SURVEY FEEDBACK .....</b>	<b>183</b>
<b>APPENDIX-III LIST OF VALID RESPONSES .....</b>	<b>188</b>
<b>APPENDIX-IV MDA Estimate and MDA Factor Values.....</b>	<b>190</b>
<b>APPENDIX-V MDA OF STARTUPS FOR BACK -TESTING PURPOSES.....</b>	<b>200</b>

## List of Tables

Table 1. Research Gap on Company Valuation .....	4
Table 2. Valuation Methodology Usage in Company Life Cycle Developed By KPMG (Djaja, 2017) .....	31
Table 3. Variables Operationalization .....	68
Table 4. Table for determining sample size from a given population .....	76
Table 5. Profile of the Respondents .....	90
Table 6. Nominal Indicators .....	92
Table 7. Profile of Respondents from Nominal Indicators .....	92
Table 8. Descriptive Statistics.....	93
Table 9. Test of Normality.....	97
Table 10. Extreme Values of X3 and X5 .....	97
Table 11. Descriptive Statistic after removing outliers.....	100
Table 12. Descriptive Statistics of Types.....	100
Table 13. Revised Normality Test .....	101
Table 14. Pearson Correlation after normality .....	101
Table 15. Reliability Statistics .....	102
Table 16. Item-Total Statistics .....	102
Table 17. Correlations for Validity Testing .....	103
Table 18. Group Statistics of Independent Variables.....	105
Table 19. Independent Sample Test - Hypotheses Testing .....	105
Table 20. Tests of Equality of Group Means .....	109
Table 21. Tests of Equality of Group Means – X1 .....	109
Table 22. Standardized Canonical Discriminant Function Coefficients – X1 .....	111
Table 23. Classification Results <sup>a</sup> – X1.....	111
Table 24. Tests of Equality of Group Means - X2.....	112
Table 25. Tests of Equality of Group Means - X2.....	112
Table 26. Standardized Canonical Discriminant Function Coefficients - X2.....	113
Table 27. Classification Results <sup>a</sup> – X2.....	113
Table 28. Tests of Equality of Group Means - X3.....	114
Table 29. Tests of Equality of Group Means - X3.....	114
Table 30. Standardized Canonical Discriminant Function Coefficients - X3 .....	115
Table 31. Classification Results <sup>a</sup> - X3.....	115
Table 32. Tests of Equality of Group Means - X4.....	116
Table 33. Tests of Equality of Group Means - X4.....	117
Table 34. Standardized Canonical Discriminant Function Coefficients - X4.....	117
Table 35. Classification Results <sup>a</sup> - X4 .....	117
Table 36. Tests of Equality of Group Means - X5.....	119
Table 37. Tests of Equality of Group Means - X5.....	119
Table 38. Standardized Canonical Discriminant Function Coefficients - X5.....	120
Table 39. Classification Results <sup>a</sup> - X5 .....	120
Table 40. Tests of Equality of Group Means Independent Variables .....	121
Table 41. Standardized Canonical Discriminant Function Coefficients - Independent Variables .....	122
Table 42. Classification Results <sup>a</sup> - IPS.....	122
Table 43. Case Processing Summary IPS .....	122

Table 44. Descriptive IPS .....	125
Table 45. Startup in Grey Area .....	127
Table 46. Number of startup in Grey Area using various IPS value as criterion.....	129
Table 47. Cross Tabulation Summary.....	130
Table 48. Gender Cross Tabulation .....	131
Table 49. Age Cross Tabulation .....	132
Table 50. Startup Tenure Cross Tabulation .....	134
Table 51. Roles Cross Tabulation.....	135
Table 52. Number of co-Founders Cross Tabulation.....	136
Table 53. Tests of Equality of Group Means Independent Variables (alternative model-1) .....	137
Table 54. Standardized Canonical Discriminant Function Coefficient (alternative model-1) .....	138
Table 55. Descriptive Statistic (alternative model-1) .....	139
Table 56. Tests of Equality of Group Means Independent Variables (alternative model-2) .....	141
Table 57. Standardized Canonical Discriminant Function Coefficient (alternative model-2) .....	141
Table 58. Descriptive Statistic (alternative model-2) .....	143
Table 59. Variables in the Analysis using stepwise approach .....	145
Table 60. Variables Not in the Analysis using stepwise approach .....	145
Table 61. Standardized Canonical Discriminant Function Coefficient (alternative model-3) .....	146
Table 62. Descriptive Statistic (alternative model-3) .....	147
Table 63. Significant Indicators per Variable .....	150
Table 64. $IPS = 0.302 X_1 + 0.272 X_2 + 0.254 X_3 + 0.181 X_4 + 0.577 X_5$ .....	151
Table 65. Back-testing results.....	152
Table 66. Back-testing results (with startup tenure) .....	153
Table 67. Background and Structure of Founders Management Team (X3) .....	177
Table 68. Risks Management (X5) .....	178
Table 69. Industry Structure (X1) .....	179
Table 70. Product Maturity (X2).....	180
Table 71. Financial Robustness (X4).....	181

## Table of Figures

Figure 1. Early Stage of Startups Companies (Damodaran, 2009) .....	6
Figure 2. Relevant Grounded Theories .....	19
Figure 3. Mapping and Database of Indonesia Startups Year 2018.....	26
Figure 4. Binomial Option Pricing Model Price Path .....	36
Figure 5. Sample tool of real option binomial pricing .....	38
Figure 6. Research Model .....	53
Figure 7. Population Size (Www.Crunchbase.Com) .....	73
Figure 8. Data Analysis Process .....	78
Figure 9. Test Survey Message .....	86
Figure 10. Finale Survey Message - IFF.....	87
Figure 11. Final Survey Message - ANGIN .....	87
Figure 12. Situation During IFF event .....	89
Figure 13. Histogram of X1 .....	93
Figure 14. Histogram of X2 .....	94
Figure 15. Histogram of X3 .....	94
Figure 16. Histogram of X4 .....	95
Figure 17. Histogram of X5 .....	95
Figure 18. Scatter Plot X3.....	98
Figure 19. Scatter Plot X5.....	99
Figure 20. Plot Box diagram IPS .....	126
Figure 21. Plot Box diagram IPS' .....	140
Figure 22. Plot Box diagram IPS" .....	144

