THE DETERMINANTS OF R&D INTENSITY: IN CASE OF MALAYSIA

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THE DETERMINANTS OF R&D INTENSITY: EVIDENCE FROM MALAYSIA

BY

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DECLARATION

I hereby declare that the work in this assignment is my own except for quotation and summaries which have been duly acknowledged.

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ABSTRACT

This paper examines the determinants of R&D spending in Malaysia. The study aims to investigate whether variables such as profitability, leverage, growth and director ownership influence R&D. Analysis of 30 companies from technology industry in ACE Market was selected. Descriptive analysis and linear regression analysis are performed in this study. By using the regression model, only two variables can be concluded as factors influencing the R&D which are profitability and leverage. Growth and director ownership are not significant in explaining the firms' decisions on R&D expenditure.

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Figure 3.1: The Determinants of R&D expenditure

LIST OF ABBREVIATIONS

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CEOs Chief Executive Officers

DCs Domestic corporations

EBITDA earnings before interest, tax, depreciation and amortization expenses

et.al (et alia); and others

FRS Financial Reporting Statement

GERD Gross expenditure on R&D

IAS International Accounting Standards

i.e. (id est); that is

MASB Malaysian Accounting Standard Board

MASTIC Malaysian Science and Technology Info Centre

MNCs Multinational Companies

MTBV Market to Book Value

NIE Newly Industrializing Economies

OECD Organization for Economic Co-operation Development

OLS Ordinary Least Squares

PLCs Public Listed Companies

R&D Research and Development

SPSS Statistical Package for the Social Science

VIF Variance Inflation Factors

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Research and development (hereafter R&D) is essential for the advancement of future performance of company and wealth creation through the development of intellectual properties and technologies (Nor, Saleh, Jaffar and Shukor, 2010). To remain competitive, companies are required to invest a certain amount of capital to attract the attention of new investors and customers by focusing on their unique and innovation. Companies with the greatest propensity for R&D can overcome the internal and external factors such as shorter product life cycles, intense competition and increase shareholders wealth. Therefore, the management of companies will determine the appropriate accounting treatment for R&D in order to show their best performance in increasing the value of companies.

The accounting treatment for R&D is discussed under FRS 138- Intangible Assets. Paragraph 54 of this standard state that no recognition for intangible assets arising from research phase, therefore, the cost shall be expensed in the income statement when they are incurred. For development cost, as stated by paragraph 57, the recognition for intangible asset only if an entity can demonstrate the following: (a) the technical feasibility of completing the intangible asset so that it will be available for use or sale; (b) its intention to complete the intangible asset and use or sell it; (c) its ability to use or sell the intangible asset; (d) how the intangible asset will generate probable future economic benefits; (e) the availability of adequate technical,

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REFERENCES

- Ahmed, K. and Falk, H. (2006). The value relevance of management's research and development reporting choice: Evidence from Australia. *Journal of Accounting and Public Policy*, 25, 232-264
- Anagnostoupoulou, S.C. (2010). Does the capitalization of development costs improve analyst forecast accuracy? Evidence from the UK. *Journal of International Financial Management and Accounting*, 21(1), 62-83.
- Bae, S.C. and Noh, S. (2001). Multinational corporations versus domestic corporations: A comparative study of R&D investment activities. *Journal of Multinational Financial Management*, 11, 89-104.
- Baysinger, B.D., Kosnik, R. and Turk, T.A. (1991). Effects of board and ownership structure on corporate R&D strategy. *Academy of management Journal*, 34(1), 205-214.
- Blundell, R., Griffith, R. and Reenen V.J.(1999). Market share, market value, and innovation in a panel of British manufacturing firms. *Review of Economic Studies*, 6, 529-554.
- Bong, H.H, and Manry, D. (2004). The value relevance of R&D and advertising expenditures: Evidence from Korea. *The International Journal of Accounting*, 39, 155-173.
- Bosworth, D. and Rogers, M. (2001). Market value, R&D and intellectual property:

 An empirical analysis of large Australian firms. *The Economic Record*,

 77(239), 323-337.
- Bursa Malaysia Securities Berhad (BMSB). No Date Annual Reports (Online):

- http://www.bursamalaysia.com/website/bm/listed_companies/company_announceme_nts/annual_reports/index.jsp (Retrieved April 10, 2010).
- Cazavan-Jeny, A., Jeanjean, T. and Joobs. P. (2010). Accounting choice and future performance: The case of R&D accounting in France. *Journal Accounting Public Policy*, 1-21. doi:10.1016/j.jaccpubpol.2010.019.016
- Chan, L.K.C., Lakonishok, J. and Sougiannis, T. (2001). The stock market valuation of research and development expenditure. *The Journal of Finance, LVI(6)*. 2431-2456.
- Cui, H. and Mak, Y.T. (2002). The relationship between managerial ownership and firm performance in high R&D firms. *Journal of Corporate Finance*, 8, 313-336.
- Chung, K.H., Wright, P. and Kedia, B. (2003). Corporate governance and market valuation of capital and R&D investments. *Review of Financial Economics*, 12, 161-172.
- Dong, J. and Gou, Y. (2010). Corporate governance structure, managerial discretion, and the R&D investment in China. *International Review of Economics and Finance*, 19, 180-188.
- Ehie, I.C. and Olibe, K. (2010). The effect of R&D investment on firm value: An examination of US manufacturing and service industries. *International Journal Production Economics*, 128, 127-135.
- Eisenhardt, K.M. (1989). Agency theory: an assessment and review. *Academy of Management Review*, 14(1), 57-74.
- Hillier, D., Pindalo, J. Queiroz, V.D. and Torre, C. D.L (n.d) The impact of corporate governance on research and development: An international study.(n.d)

- Landry, S. and Callimaci, A. (2003). The effect of management incentives and cross-listing status on the accounting treatment of R&D spending. *Journal of International Accounting, Auditing & Taxation*, 12,131-152
- Markarian, G., Pozza, L. and Prencipe, A. (2008). Capitalization of R&D costs and earning management: Evidence from Italian listed companies. *The International Journal of Accounting*, 43, 246-267.
- Malaysian Accounting Standard Board (MASB) (2006). FRS 138: Intangible asset, 1-132
- MASTIC National Survey of Research and Development, Seventh Edition (2008).
- Nor, H.M., Saleh, N.M., Jaffar, R. and Shukor, Z.A. (2010). Corporate governance and R&D reporting in Malaysian MESDAQ Market. *International Journal of Economic and Management*, 4 (2),350-372.
- OECD (2002), Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, OECD, Paris, www.oecd.org/sti/frascatimanual.
- Othman, R. and Ameer, R. (2009). The determinants and persistence of research and development investment: Evidence from Malaysia. *International Journal of Emerging Markets*, 4(3), 275-293
- Oswald, D. (2008). The determinants and value relevance of the choice of accounting research and development expenditure in United Kingdom. *Journal of Business Finance and Accounting*, 35(1)&(2), 1-24. doi:10.1111/j.1468.5957.2007.02060.x.

Promotion Investment Act, 1986

- Salamudin, N., Bakar, R., Ibrahim, M.K. and Hasan, F.H. (2010). Intangible assets valuation in the Malaysian capital market. *Journal of Intellectual Capital*, 11(3), 391-405.
- Scott, T. (2005). Corporate social responsibility and environmental research and development. *Structural Change and Economic Dynamics*, 16, 313-331 C.A.,
- Shukor, Z.A., Ibrahim, M.K., Kaur, J. and Nor, H.M. (2009). The value relevance of intangible non-current assets during different economic conditions and accounting environments. *Malaysian Accounting Review*, 8(2), 43-66.
- Smith, C.W., Warner, J.B., 1979. On financing contracting: an analysis of bond covenants. *Journal of Financial Economics*, 7, 117-161
- Taufil, K.N.M., Latif, R.A., Hussin, W.W.N., Bakar, R.A. and Ismail, K. K. N. I. (2006). The value relevance of R&D expenditure: evidence from Malaysia.

 IIUM Journal of Economics and Management, 14(2), 205-226.
- White Paper (2002), Comparative analysis of R&D Development in Malaysia.
- Zainol, A., Nair, M. and Kasipillai, J. (2008). R&D reporting practice: case of a developing economy. *Journal of Intellectual Capital*, 9(1), 122-132. doi:10.1108/14691930810845849.
- Zeng, T. and Lin, H.C (2011). Ownership structure and R&D spending: evidence from China's listed firms. *Chinese Management Studies*, 5(1), 82-93
- Zhao, R. (2002). Relative value relevance of R&D reporting: An international comparison. *Journal of International Financial Management and Accounting*, 13(2), 153-174.
- Zickmund, W.G., Babin, B.J., Carr, J.C & Griffin, M. (2010). Business Research Methods. Eighth edition.