

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In this chapter, the importance of R&D activities to the firms' competitiveness is discussed. The chapter then goes further by discussing the R&D practices by U.S. and U.K. companies. Then the chapter discusses the Research and Development practices from the Malaysian perspective. This chapter also discusses the perspectives in which the study is similar or different with the previous studies that had been undertaken.

2.2. Research and Development and Firms' Competitiveness

R&D activities play an important role in increasing the organisation's competitiveness. The importance of R&D activities could not be overlooked. If such activities are not being carried out sufficiently, this would have a negative impact on the organisation's competitiveness. The studies that has been carried out show that R&D role is significant in enhancing the company's competitiveness in the international level. A study in the U.S. discovered that the diminishing competitiveness of U.S. firms in international trade has been caused by declining R&D intensity. (Young, 1985). R&D activities are not only important for international competitiveness; they also play an important role to increase long-term chances of survival. According to Donaldson, a company that is facing liquidity shortage may perceive R&D as an expense that can be cut fairly quickly without doing much damage in the short-term. However, the company may not realise that by doing so it may damage the company's longer-term chance of survival. (T.H. Donaldson, 1983).

2.3. R&D Practices in U.S. and U.K.

Baber, Fairfield and Haggard (1991) conducted a correlational study to determine whether concern about reporting favourable trends in accounting net income influenced the companies' decisions to invest in Research and Development. The methodology being adopted for this study was scientific and quantitative. This study used data for 438 U.S. industrial firms during the period 1975-1987. The

industrial firms were selected from the 1988 COMPUSTAT data file. All of the firms had R&D expense that was greater than 1 percent of sales for each of the years 1975-1987. 3 cases were developed on which the study is based on.

Case 1:

Accepting or rejecting existing R&D opportunities yields current-period income that exceeds the income objective

Case 2:

Accepting all existing R&D opportunities yields current-period income less than the income objective, but rejecting all opportunities yields income greater than the objective.

Case 3:

Accepting or rejecting existing R&D opportunities yields current-period income less than the income objective.

The evidence obtained from the study supported the hypothesis that the managers' concern about reported earnings influenced their decisions to invest in R&D activities.

Grinyer, Collison and Russell (1994) conducted an empirical study to determine whether managers would vary the expenditure on research, product development, advertising and training in order to meet the profitability expectations of the capital market. The methodology adopted for this study was quantitative and scientific. This study was based on questionnaires that were sent to Finance Directors of 1000 Times U.K. companies in the year 1991. The study presented hypotheses that other things being equal, managers were likely to be motivated to:

H1: increase the level of expenditure on revenue investments when they believe that profits would otherwise materially exceed the capital market's expectations.

H2: reduce the level of expenditure on revenue investments when they believe that profits would otherwise materially undershoot the capital market's expectations.

Five-point Likert scale ranging from 'strongly disagree' to 'strongly agree' was used to analyse responses from the Finance Directors. The empirical evidence obtained from the study was consistent with the above hypotheses. Thus, it can be concluded that the managers were influenced by capital market's expectations of profits in making decisions on revenue investments.

2.4. Factors Influencing the Finance Directors' Perceptions

In discussing the R&D practices of the companies, it is also equally important to know the Finance Director's perceptions. This provides an understanding of the reasons for the Finance Directors to carry out such R&D practices. In UK, some of the evidence that had been gathered revealed that the decline in the country's manufacturing performance and its product innovation performance was due to short-term performance pressures from capital market (Demirag & Goddard, 1994). The root of this capital market pressure lay in the principal-agent relationship where the shareholders acted as principal and the directors as agent for the shareholders. Cosh, Hughes & Singh (1990) also supported the view that market pressures were increasingly directed towards short-term performance assessment. According to them, the institutional investors were becoming more short-term oriented. They assessed companies' success over a period of 3 years or even shorter.

Although findings by Demirag & Goddard (1994), Cosh et al (1990), Grinyer et al (1994) seemed to suggest that the Finance Directors' perceptions were caused by external factors; Marsh (1990) argued that the perceptions arised due to the internal drives at firm level. According to him, performance-related payment systems for managers tend to reward them for short-term profitability rather than contribution to long-term performance. In UK, the situation is such that there is

high mobility amongst the top managers. In such instances, there is an increased tendency for managers to defer or to avoid altogether certain classes of revenue expenditure (such as R&D), that may otherwise reduce current reported profits. (Demirag, 1995).

Demirag (1995) conducted an empirical study to explore the perceptions of Group Finance Directors on whether they perceived short-term pressures from the capital market in allocating the expenditure for R&D activities. Short-termism was defined as the extent to which managers' decisions and actions are primarily concerned with short-term benefits as against long-term gains. (Mamman & Saffu, 1998). The study attempt to investigate whether other factors also played an important role in giving rise to the Finance Directors' perceptions. A conceptual framework was developed to identify these factors. The factors were categorised into external factors and internal factors. The short-term performance pressures from the capital market was identified as external factor whilst performance-related systems for managers and the method for evaluating investment proposals were categorised as internal factors.

In carrying out the study, questionnaires were sent to 256 companies of which only 110 companies responded to the questionnaires. Likert five-point scale was used to determine the respondents' perceptions of short-termism. The findings of the study indicated that most of the U.K. Group Finance Directors perceived (from capital markets) and imposed (on the subordinates) short-term pressures that tend to reduce the companies' R&D expenditure.

2.5. Research and Development Activities in Malaysia

The survey of R&D activities in Malaysia was undertaken by MASTIC. MASTIC had begun its survey on the Malaysian R&D activities since 1992. From that year onwards, surveys were carried out once every two years. The results of the survey for the year 2000 are not yet released. In a third survey conducted by MASTIC in 1996, it was found out that the GERD declined by 10.1% from RM

611.2 million in 1994 to RM549.1 million. However, the survey indicated that there was much improvement in private sector involvement in R&D activities. The number of private companies carrying out R&D activities increased from 140 in 1994 to 158 in 1996. R&D spending by the private sector grew by RM 107.5 million to reach RM400.1 million in 1996. This accounts for 73% of the total GERD, an increase from 42% recorded in 1994. (MASTIC, 1996). In 1998, however, the GERD/GDP ratio has risen from 0.22% in 1996 to 0.39% in 1998. According to the survey, the increase was caused by increment in the operating and capital expenditure. The survey had also identified that the major factors that limited R&D activities in the private sector were lack of new product/R&D strategy and shortage of R&D personnel with requisite expertise. The Finance Directors' perceptions was not identified and discussed in the study.

Although the survey undertaken by MASTIC in 1996 showed improvement in private sector's involvement in R&D activities, recent survey undertaken by Malaysian Business Trends however, revealed that companies in Malaysia allocate less than 1% from capital budget expenditure for research and development activities. (News Straits Times 27/04/2001). Malaysia also seems to be behind other countries in terms of GERD/GDP ratio. Malaysian GERD/GDP ratio was at 0.39% in 1998 whilst Singapore at 1.76% in 1998, Taiwan 1.8% (1994), U.S. 2.52% (1996) and Japan 3.0% (1996). (MASTIC, 1998).

MASTIC had identified that the major factors that limited R&D activities in the private sector were lack of new product/R&D strategy and shortage of R&D personnel with requisite expertise. However, there is not much literature that discusses the Finance Directors' perceptions pertaining to the allocation of R&D expenditure in Malaysia. One attempt was made by Abdullah (1994) to analyse the R&D practice by transnational corporations (TNC) in Malaysian manufacturing firms. The study was based on 60 firms. Abdullah carried out the study by using questionnaires and interviews with the firms' staffs. According to

the study, there seemed to be reluctance on the part of TNC's to allocate funds for R&D activities in Malaysia. The study also discovered that more than 90 percent of the TNCs reported are found to have spent an average 1 percent or less of their turnover on R&D. This study concluded that transnational corporations' reluctance to participate and invest substantially in local R&D could result in a gradual reduction technology flow and stifle the development of domestic innovative capacity. (Abdullah, 1994).

2.6. The Scope of the Study

The literature review above provides an overview of R&D practice in U.K. and U.S., the Finance Directors' perceptions, R&D activities in Malaysia in general and R&D practice in Malaysia with respect to the TNC. This study is conducted with the hope to extend from the past work that had been carried out. Demirag's research was directed in examining whether market pressures exists and thus influencing the finance directors to behave in short-termistic manner. (Demirag, 1995). Research done by Abdullah was centred on R&D practice by TNC. (Abdullah, 1994). Baber et al, conducted a correlational study to examine the impact of the companies' concern about reporting favourable trends in accounting net income on their decisions to invest in Research and Development. (Baber et al, 1991). Grinyer et al, attempt to determine whether managers would vary the expenditure on research, product development, advertising and training in order to meet the profitability expectations of the capital market. (Grinyer et al, 1994).

This research is similar to Baber et al, and Grinyer et al, on the grounds that it attempts to discover whether the Finance Directors are concerned with the impact of R&D expenditure allocation on the companies' current earnings. However, the approach and methodology used in this study is different. The studies above were quantitative and scientific. This study, however, is qualitative in nature. The Qualitative methodology allows for in-depth study of the issues in question. This methodology was also used by Abdullah (1994) in his study.

Instead of using Likert scale to be measure the perceptions of the Finance Directors, open-ended questions were developed and included in the questionnaires to allow the respondents to express themselves freely and openly. A copy of the questionnaire is enclosed in APPENDIX B at the end of this thesis. Usage of some open-ended questions in the questionnaire is consistent with Qualitative Research Methodology adopted for this study. Further discussion about the Research Methodology could be followed in Chapter 3 of the thesis.