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INTELLECTUAL CAPITAL, MANAGEMENT ACCOUNTING PRACTICES AND CORPORATE PERFORMANCE: A STUDY ON SIX LARGE MALAYSIAN COMPANIES

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INTRODUCTION

Knowledge and information are prime commodities in today's 'knowledge-economy' where economic enterprises are increasingly knowledge-based and technologically-driven. Knowledge firms have a large proportion of their investment in intangible assets, and this poses a real challenge both for financial and managerial accounting that traditionally have not adequately reflected the investment and performance of intangibles in financial statements.

Increasingly, however, it is being recognised that intangible assets and intellectual capital (IC) are the keys to attaining competitive advantage for knowledge firms (Segelod, 1998), especially in the world's liberalised economy. Knowledge-based assets are the foundation for success in the 21st century. Wiig (1997) argues that knowledge and IC play a fundamental role within modern enterprises, many leading organisations, such as Skandia Insurance and Ernst & Young, have successfully managed knowledge and IC. Klein and Prusak (1994) define IC as "packaged useful knowledge". Sullivan (2000) suggests that IC basically constitutes knowledge, lore, ideas, and innovations.

Two major components of IC are human capital and intellectual assets. A clear distinction between these two forms relates to ownership - human capital cannot be owned by companies. However, firms can transform innovations produced through human capital into intellectual assets to which they have rights of ownership. Knowledge firms are firms that derive their profits from innovation and knowledge intensive services (Edvinsson and Sullivan, 1996). They create and deploy knowledge intensively or at a high degree, and must possess high IC to do so. Such firms could be called high IC firms. Examples of these firms are service firms (consulting, legal, and accounting firms), pharmaceutical, software, and high-tech manufacturing firms. Thus, those firms that do not create and deploy knowledge intensively could be called low IC firms. Usoff *et al.* (2002) categorise high IC firms as those firms for which IC is very important, and low IC firms as those for which IC is not very important.

The IC literature in accounting mainly addresses external reporting (e.g. Guthrie, 2000; Bukh *et al.*, 2001; Mouritsen *et al.*, 2001a). Roslender and Fincham (2001) observe that there is very little academic literature on accounting for IC, while the practitioner oriented literature has become repetitive. The first objective of the paper is to explore whether management accounting evolves as organizations adapt their management strategies and practices to reflect the growing knowledge-based economy. The second objective is to examine the relationships between IC and management accounting practices, IC and corporate culture. The final objective is to assess whether performance is associated with IC.

LITERATURE REVIEW

Intellectual Capital (IC)

IC has been defined by Klein and Prusak (1994) as “packaged useful knowledge”. It basically constitutes knowledge, lore, ideas

and innovations (Sullivan, 2000). Two major components of IC are human capital and intellectual or intangible assets. A clear distinction between these two forms relates to ownership. Whilst human capital cannot be owned by companies, innovations produced through human capital can be transformed into intellectual assets to which they have rights of ownership.

While earlier writers may not agree on the precise definition of IC, there is broad consensus that it contains human capital, structural capital and relational capital ; Edvinsson and Malone, 1997; and Roos *et al.*, 1997;). Human capital captures the knowledge, professional skill and experience, and creativity of employees. Structural capital consists of innovation capital (intellectual assets such as patents) and process capital (organisational procedures and processes). Relational capital captures the knowledge of market channels, customer and supplier relationships, and governmental or industry networks. Thus “IC is the possession of knowledge and experience, professional knowledge and skill, good relationships, and technological capacities, which when applied will give organisations competitive advantage” (CIMA, 2001).

Intellectual capital management (ICM) is the ‘direction’ of the value-driven transformation of human and relational capital into the structural capital of the organisation (Lynn, 1998). Corporate processes (e.g. recruitment, training and compensation) help foster creativity and innovation. Together with appropriate technology and structural capital they create and share organisational knowledge which, when exploited and applied to external knowledge and relational capital produces corporate competitive advantage. The outputs of knowledge management are innovations or intellectual assets. Intellectual assets such as patents and trademarks are normally legalised in order to obtain legal, proprietary rights upon them, producing intellectual property. Together with structural capital (technology, procedures, processes, etc.), tangible assets and relational capital they managed to create profitable new products and services. ICM therefore converts IC into intellectual assets, which, when commercialised increases corporate value (Roos *et al.*, 1997; Edvinsson and Malone, 1997;

Edvinsson and Sullivan, 1996).

As mentioned above, accounting research into IC has followed various directions, for example, Grojer and Johanson (1998) remind us that some aspects of accounting for IC may have originated in human resource costing, which seems to have experienced reduced focus in recent decades. The dormant nature of this is also referred to by Roslender and Fincham (2001) in their critical thinking on IC, when they pose the question what form accounting for IC should take. Dealing with matters external to the firm Stolowy and Jeny-Cazavan (2001) address the setting of standards for financial reporting of intangibles, in relation to which Holland (2003) contrasts a more market-based approach, when data is used by institutional fund managers. Related to this topic, Amir *et al.* (2003) have undertaken a quantitative analysis focusing particularly on R & D. Bukh (2003) comments on the need for firms' disclosure on IC to be part of the framework of value creation processes within the firm in order to be seen as relevant by the capital market, whilst a method to develop a latent index to proxy performance elements of human capital assets has been developed and proposed by Abdel-Khalik (2003).

Collier (2001) points out that the intellectual capital of an organisation may be different from its intellectual capacity, contrasting a flow rather than stock approach. Mouritsen *et al.* (2001b) develop some of this in their report of numbering, visualisation and narratives in the accounting for IC at Skandia. Van der Meer-Kooistra and Zijlstra (2001) in reviewing IC reporting models convey their experiences of IC accounting in some Danish companies also drawing attention to the audit complexity that may apply in some aspects of reporting. Acknowledging that the antecedents of today's intellectual capital movement lie in practice, Petty and Guthrie (2000) suggest it is desirable that researchers keep their work focussed on business practice. A point supported by the work of Chaminade and Roberts (2003) in implementing intellectual capital reporting systems in Norway and Spain. Related to this Guthrie *et al.* (2001) point to two IC 'missions' on which this paper throws some light, being systems for creating, capturing and disseminating IC and measures and ways

of reporting value attributable to IC within organisations. Tayles *et al.* (2002) have some suggestions on this latter point on which this paper offers an empirical contribution.

In the rest of this section we examine a number of management accounting practices (MAPs) and suggest from the contemporary literature how High IC firms may be expected to develop such practices.

IC Reporting and Reference in Strategic Decisions

One of the management accountants' roles as 'staff' is to provide information for top management to make strategic decisions (Atkinson *et al.*, 1995; Drury, 2000). The information provided in the form of internal reporting (the inputs) is a very critical factor contributing to the quality of the strategic decisions to be made (outputs) (Gordon *et al.*, 1978). Traditionally, the internal reports are to help management in planning and control, and the reports contain feedback and control on operating performance. The type of information is more subjective and judgemental, valid, and relevant, when compared to that of financial accounting. It is the role of management accounting to accurately provide accurate and timely information on firms' IC (Tayles *et al.*, 2002). Firms that invest highly in IC, or knowledge firms such as software, pharmaceutical, consultancy, legal, auditing, etc. that have very high IC (intangible assets), have higher significance and should have a new form of reports because they are knowledge-based, their important resources are intangibles, and their major output is knowledge. Firms should highly invest in IC's internal reporting in order to reflect IC more or else their internal reporting system is inadequate and inappropriate. In consequence, the strategic decisions would not be based on sufficient information and this could result in corporate failure. An example of such system is the BSC or an intangible asset monitor to evaluate IC.

Therefore, our proposition is: Firms should report their IC value internally and use this IC information in their strategic decisions.

Performance Measurement

The traditional performance measurement that employs financial techniques such as Return on Assets and Return on Capital Employed (Usoff et al., 2002) have been criticised for being backward looking (Bourne et al., 2000), unable to measure intangible resources (Amir and Lev, 1996), and not suitable for assessing performance of investments in new technologies and markets in which firms require to compete successfully in global markets (Eccles, 1991). There is a move towards accounting-based financial measures which is more closely linked to shareholder value. Such measure is called EVA (Bontis et al., 1998; Barksy and Bremser, 1999). O'Hanlon and Peasnell (1998) note that EVA is a variant of residual income developed to promote value-maximising behaviour in corporate managers. It is an accounting-based performance measure, which yields the same discounted present values as free cash flow, thereby retaining the focus of accounting profit on the matching of costs and revenues without losing value relevance. EVA has been advocated as an appropriate IC performance measure (Bontis et al., 1998). In the early 1990s, balanced, multi-dimensional performance measurement models were developed, to overcome the weaknesses of financial measures (Bourne et al., 2000). Such models place greater focus on intangible resources (Amir and Lev, 1996) such as key customers, internal processes, and learning (Simons, 1990). Commonly used models include Balanced Scorecard (BSC) (Kaplan and Norton, 1996; Lipe and Salterio, 2000), Intangible Assets Monitor, and Skandia Navigator (Sveiby, 1997). For example, the BSC considers relational IC (customer perspective), structural IC (innovation, learning, and internal perspectives), and the impact of IC on shareholder goals (financial perspective).

We propose that high IC firms should employ appropriate performance measurements that incorporate IC value.

Budgeting

According to Hopwood (1973), there are three styles of organisations' use of budget in performance evaluation:

- Budget constrained style. Evaluation of performance is based on the ability of the manager to continually meet the budget on a short-term basis.
- Profit conscious style. Evaluation of performance is based on the ability of the manager to increase the general effectiveness of his units in terms of long-term objectives of the organisation.
- Non-accounting style. Evaluation of performance is based on non-accounting (non-financial) information and very little accounting information.

Fanning (2000) notes that the non-accounting style is the one that is most appropriate for high IC firms because of the high intangible nature of their assets and resources. There is a growing recognition of the limitations of budgeting (e.g. Stewart, 1990; Bunce et al., 1995; Wallander, 1999; Fanning, 2000; Hope and Fraser, 2001; Jensen, 2001). Suggestions for improvement include approaches such as zero-based, priority-based, and activity-based budgeting, and regular re-forecasting (Fanning, 2000). However, they can be bureaucratic, internally-focused, and time-consuming. Budgeting has been described as 'out of sync' with the information age (Hope and Fraser, 1997), and high IC firms may need to reduce or eliminate the emphasis on conventional budgeting (Stewart, 1990; Hope and Fraser, 1997 and 1999; Wallander, 1999). Some high IC firms (such as Svenska Handelsbanka, the largest commercial bank in Sweden) claim to have benefited from this reduced emphasis.

Therefore, our proposition is: High IC firms adopt appropriate evaluation style and they employ more frequent forecasting and place less reliance on budgeting in both its traditional and 'zero-based' forms.

Capital Investment Decisions

Traditional appraisal techniques are no longer appropriate for high-tech, knowledge based firms with high intangible investments, given their non-financial benefits and cost complexity (Carr and Tomkins, 1996; Irani *et al.*, 1998; Mouck, 2000). Increasingly, firms invest less in tangible assets, and more in R&D, training, marketing, software, and other intangibles. These are hard to justify, using conventional capital budgeting tools (Irani *et al.*, 1998).

There is a growing literature on real options (MacDougall *et al.*, 1999; Neil and Hickey, 2001; Seth and Sung, 2001). It considers the value of option-like features within capital investment decisions; the most relevant to high IC firms is its strategic or follow-on option. High IC firms that have invested heavily in innovation will be in a better position to exploit future opportunities, as yet unidentified. These strategic options would include such areas as entering new markets, development of follow-on products, and development of brand extension. Real options valuation improves the traditional capital budgeting approach by providing a better evaluation of strategic investments.

From the review of capital budgeting, our propositions are: Firms with relatively high IC rely heavily on strategic approaches to capital budgeting, and accept projects with NPV values because intangible investment benefits are hard to quantify. High IC firms are also employing a real options approach in investment analysis.

Corporate Culture

Barney (1986), as cited by Bontis (1998), suggests that organisations should have a culture that supports and encourages cooperative innovation, because this would give them competitive advantages. According to Bontis, Barney's discussion on the potential for organisational culture to serve as a source of sustained competitive advantage concludes that firms that have the required culture are able to engage in activities that will modify their culture and generate

sustained superior performance. Hope and Fraser (1997, 1999) support this and suggest that firms with high levels of IC should give more freedom to front-line managers to set policies and make strategic decisions. Thus, our propositions are: high IC firms have a high culture of trust to allow human IC to flourish. Also, firms with the appropriate corporate characteristics, i.e. trust and culture mix, achieve superior performance.

The research model for this paper is shown in Figure I above. Our aim is to examine how management accounting practices and corporate culture found in large Malaysian firms vary with the level of IC and its mix, in terms of human, structural, and relational capital. We then ask whether this has any impact on corporate performance.

RESEARCH METHODOLOGY

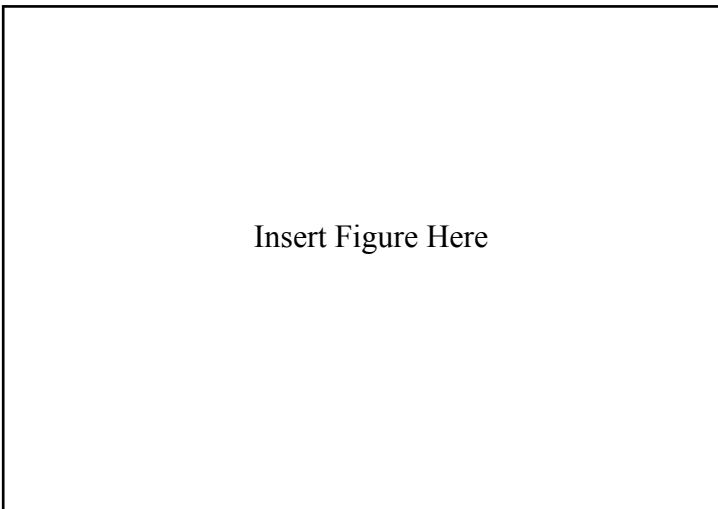


Figure 1: Research Model

The nature of the study is both exploratory and descriptive. Most prior research on IC, has applied questionnaire surveys only for data collection (e.g. Bontis, 1998; Dooley, 2000; Lovero, 2000; Reeds, 2000; Usoff *et al.*, 2002), however, this research employed case studies in six large companies. The research was conducted in Malaysia, the fifth most competitive country in the world according to the 2004 World Competitiveness Yearbook. In spite of this being a developing economy, research into intellectual capital in developing nations has been undertaken successfully before (Abeysekera and Guthrie 2004).

The case studies were conducted in six large companies during 2003 in the Klang Valley (Kuala Lumpur and places around it), Malaysia. Usoff *et al.* (2002) suggest that the firms that can afford IC management (ICM) are normally large in size. One of the ways to determine size is by looking at the number of employees. The small and Medium Industries Development Corporation (SMIDEC) of the Ministry of International Trade and Industries (SMIDEC, 2004), Malaysia, defines small and medium enterprises (SMEs) as manufacturing companies or companies providing related services with annual sales turnover not exceeding RM25 million and full-time employees of not more than 150. Even though this is on manufacturing, this is the closest definition found for SMEs in Malaysia. Since the research was conducted in Malaysia, to ensure that the firms surveyed were large in size, the companies selected were those listed under Kuala Lumpur Stock Exchange (KLSE), now known as Bursa Malaysia. The country has, for some years, developed a Multimedia Super Corridor close to where the companies involved in this research are located. These companies were chosen because they represented four broad sectors, where IC is expected to be beneficial i.e. technology, high-technology manufacturing, finance and service sectors. Four of the companies (software, Islamic insurance, conventional bank and broadcasting), are listed under Bursa Malaysia. The other two (Islamic bank and manufacturing) are not, but they fulfilled the definition of large companies. The original purpose was to have one company to represent each sector, however, three companies under the finance

sector agreed to participate. The extra two were included because they are categorized as large companies. Interviews were conducted with accountants, human resource managers, marketing managers and intellectual capital/knowledge managers, as appropriate, in each of the companies. This method was chosen because it provided valuable insights that could not be achieved through other methods such as postal survey and telephone interview. The evidence obtained, are more in-depth and richer, as questions like ‘who?’, ‘what?’, ‘how?’, ‘when?’ and ‘why?’ could be asked (Yin, 2003).

The questions asked were on matters through which the literature and conceptual framework of the research is linked to type of IC, MAP, corporate culture and performance. Some of these questions were personally developed based on the literature, whilst others were adopted or adapted from prior work of Bontis (1998), Reeds (2000), Usoff *et al.* (2002), Hopwood (1973), Hope and Fraser (1997), Irani *et al.* (1998), Segelod (1998, 2000) and Fanning (2000).

The managers were asked a range of questions relating to their company’s emphasis on IC. These questions were drawn from earlier work that was used to explore the nature of intellectual capital (Bontis, 1998; Reeds, 2000; Usoff *et al.*, 2002).

The managers were also asked to indicate the degree of importance, the nature and use of a range of management accounting practices in their organisations. This was undertaken in the areas of corporate culture, performance measurement, accounting style, budgetary control, and capital budgeting, as outlined in the literature above. Finally, questions were raised on perceived performance (financial, non-financial, and overall performance) of their companies in terms of their sector.

Apart from the interviews, evidence was also obtained from secondary data, such as annual reports, employee bulletins and company magazines. Thirteen propositions were forwarded to the companies. Data from the case studies were analysed by using frequency. Propositions were considered supported when there is an agreement from at least four out of the six companies.

The Six Companies' and Their Backgrounds

Software and Telecommunication Company

The company that is involved in the telecommunications and IT-related businesses. Its activities include the manufacturing, servicing and marketing of telecommunication products, as well as the provision of related services. Its IT-related activities includes education, software design and development, distribution of computer products, maintenance, networking, and consultancy services, as well as sales of security systems. Among the company's recent pilot projects are its participation in Smart School and E-Government. This marked the beginning of the company's involvement in the knowledge economy, which in turn has positioned it as one of the leaders of the technology sector.

Conventional Bank

The Bank offers services in the areas of commercial banking, finance, nominee and trustee services, insurance, merchant banking, leasing, offshore banking, venture capital, hire purchase, discount house business, factoring, stock broking, property trust fund management, and unit trust fund management. The bank has hundreds of branches in the country, and more than twenty overseas branches, located in large cities such as Singapore, Brunei, Hong Kong, London, New York, Port Moresby, Yangon, Tashkent, Beijing, and Jakarta. The company has a large ATM network nationwide.

Broadcasting Company

The company's core business is commercial television broadcasting. In addition, the company is also involved in other activities that complement and enhance its core business, such as post- and pre-production services, sports and event management, and training and education in film, broadcasting, and related activities. The company's products, i.e. television programmes, are sold to Middle Eastern and

Asian countries, whilst airtime selling is targeted at Malaysian-based advertisers. For the period from August 2001 to May 2002, the company achieved a 47% share of television advertising and 40% share of viewership.

Manufacturing Company

The company is one of the world's leading suppliers of fast-moving consumer goods, i.e. everyday goods, food and home and personal care. The company has a record of above average performance, and it strives to achieve the best.

The company's strength lies in its ability to tailor products to different markets and anticipate consumer demands. This comes from its in-depth understanding of the countries in which it operates and its policy of listening to its customers.

Islamic Insurance Company

The company commenced business with only two branches. The basic concept of 'takaful' (Islamic insurance) is the provision of insurance as a form of business in conformity with Islamic law, based on the Islamic principles of Al-Takaful and Al-Mudharabah. Al-Takaful means the act of a group of people reciprocally guaranteeing each other, while Al-Mudharabah is the commercial profit-sharing contract between the provider of funds for a business venture and the entrepreneur. The company offers family 'takaful' plans, which encompass savings, as well as the cover of mutual financial aid in case of untimely death, disablement or hospitalisation of a participant. General 'takaful' offers fire, accident, marine, engineering, and motor 'takaful'. The company established a Retakaful Pool for Fire Takaful Scheme under the General Takaful Business in 1996, after the formation of an Asean Takaful Group. Subsequently, the company incorporated Asean Retakaful International (L) Ltd (ARIL), a retakaful entity offering family and general Retakaful business. The company has been awarded ISO for services.

Islamic Bank

The bank started operations in 1999, is one of the fully-fledged Islamic banks to be established in Malaysia, and is poised to play its role in providing Islamic banking products and services to Malaysians, irrespective of race or religious beliefs, thus contributing to the development of modern Malaysia.

According to the chairman of the bank, Islamic banking and financial institutions, today, manage assets more than \$200 billion, while an additional \$200 – 300 billion-worth of assets were being managed by Islamic windows of international banks in New York, London, Paris, Geneva, Tokyo, and other financial centres. In the last four decades, Islamic banking has grown at an average rate exceeding 10% per annum. It is now a multi-billion dollar industry. Its growth in Malaysia is encouraging. Today, it accounts for about 8.2% market share of the local banking industry. This bank contributes about 16% of the market share in Islamic banking in Malaysia (Internal circulation of the bank's bulletin: 10th edition, Issue 1, 2003).

FINDINGS AND DISCUSSION

Results from the interviews are summarised in this section. The Broadcasting company provides a good example of decentralised management and a culture of trust. The HR manager asserted that the production houses are given freedom to be innovative and creative in making the TV programmes. This was supported by the chief accountant who confirmed that: *“the company's management structure is determined, basically, by the nature of the business.”*

Interviews in the bank also confirmed that its structure is quite highly decentralised, where branch managers are given considerable freedom to make decisions.

Management within the case companies tended to use the term 'Knowledge' rather than IC, with the exception of the software

company, which applied the term ‘Intellectual Property’. This company had the most advanced intellectual capital management process, coordinated by a Director of Intellectual Capital. None of the case companies published additional IC information in or with the annual report, though all of them reported it internally and referred to it in strategic decisions. The Broadcasting company was an interesting example of this, observing that the reports on the production houses were indirectly reported on IC.

Performance Measurement

Interviews with accountants in the case companies found that superiors gave importance to both financial and non-financial matters in evaluating their performances. All companies studied confirmed that they used a combination of both financial and non-financial measures. All except the broadcasting company viewed this as a first step towards the Balanced Scorecard framework, but few had taken it further. Sales and profitability remain the most frequently employed measures, although the software and the manufacturing companies both employed EVA[®] as one of their financial measures. The IC director of the software company commented:

“The performance measures must be understood by the persons in charge. In the past the system has been more in the form of financial measures. A non-financial performance measurement system is definitely planned for increased use in the future.”

However, the financial manager was still not convinced:

“No matter what approach is being used for performance measurement, the bottom line is still financial figures, i.e. financial reports that top management and investors want to look at.”

Tension between the two views on the appropriate form of performance measure was observed, with the IC director concluding:

“We have a lot of innovations going on, definitely, innovation here is not just in technological form, but also business innovations. The innovation is how we approach the market, how we design solution for customers, and so on. The challenge is how effective it is to convert innovations into revenues. We shouldn't just document the innovations, but also commercialise them.”

In the manufacturing company the financial accountant pointed out:

“...the company has both financial and non-financial measures for performance. For example, it measures the motivational climate of the company, i.e. whether people of the company are happy or not, by using a 'global people survey'. The other measures are statistical, for measuring efficiency and effectiveness, such as stock holding, capacity utilisation, and customer service. However these non-financial measures are not conveyed in the annual report.”

In the Islamic Bank the VP finance observed that all banks had to comply with the controls applied by the Central Bank, these are currently mainly financial. The bank had however developed a number of non-financial measures, he confirmed:

“Some examples of the bank's non-financial measures are efficiency measures, such as turnaround time, loan processing time, counter service (customer queuing time), and customer complaints' processing time. BSC

was introduced by the bank's consultant in 2002, and has been implemented since January 2003, starting with the marketing department. It is still too early to assess the progress of the BSC implementation."

From our examination of the performance measurement systems in knowledge-driven firms we conclude that there is greater emphasis on value-based measurement approaches and growing emphasis on a combination of financial and non-financial measures that have yet to be established in scorecard type models that adequately measure the IC contribution.

Budgets and Control

Interviews in the six case companies revealed a relatively strong budget emphasis in the companies, that is, emphasis on the budget and an ability to meet the budget. However, they also recognised the importance of ability to increase the general effectiveness of the unit in addition to a concern for cost. There was little evidence of a more relaxed or 'flexible' budgeting style. The Islamic bank has a procedure in budgeting close to the priority-based approach. The other case companies indicated they were applying an activity-based budgeting style.

In the Bank VP Finance declared:

"...the Budget is emphasised in the bank, and we are slowly evolving from the traditional budget style as a more modern approach is implemented. Additionally related to capital budgeting, since investments are in the form of both tangible and intangible assets, financial and non-financial methods are used in capital investment appraisals. Negative NPVs would be accepted if the project proposal were really convincing, such as giving good market and business analyses."

Capital Budgeting

In terms of whether the level of IC within firms influences capital budgeting approaches we find that all the six companies attach greater importance to conventional financial capital budgeting approaches such as accounting rate of return, payback, net present value, and internal rate of return. They are also more likely to use a real options approach, and accept projects where the financial appraisal does not support such action. Real options are particularly relevant to R&D projects and strategic decisions where many of the benefits are long-term and hard to quantify.

In the software company the financial manager, very honestly, confirmed that the accounting and finance function needed to become better acquainted with some of the concepts of IC:

“The system is not there yet”

She conceded that even though formal non-financial or strategic appraisal of projects is not really applied in the company, it does occasionally proceed with projects which show low or negative NPVs, for business reasons.

The accountant in the Broadcasting company repeated a similar message:

“Investments of the company are both tangible and intangible, but there is no real system for capturing the costs and benefits of the intangible investments.”

Similarly, management at the conventional bank declared:

“The capital investment process is heavily financial and thus it does not easily capture the intangible costs and benefits in any direct way”

There has long been the assertion that decisions are effectively taken well before the formal approval stage, financial analysis being little more than a way of legitimizing decisions which management had already taken (Bower, 1970; Aharoni, 1966). This may particularly be the case with knowledge-driven firms where many of the costs and benefits cannot be captured by conventional capital budgeting.

The accountants/finance managers perceived that their companies achieve high performance levels relevant to their sector. A comparison of this perception with the companies' actual performance was done and it was found that regarding short-term financial performance, the evidence for superior performance is weak. However, we find positive association for the IC variables with industry leadership, future outlook, response to competition, successful new products, and overall business performance. It is clear the six high IC companies show high performance. The results are in line with Nonaka and Takeuchi (1995) and other authors, for example, Bontis (1998) and Teese (2000).

There is a strongly held perception by the managers that the level of IC is associated with higher levels of overall business performance, as the IC Director of the Software company commented on not just documenting innovations, but on converting them to revenues, that is, commercialise them. The findings bring out this challenge to accounting: Management believe that IC enhances business competitive and non-financial performance, but it has yet to show up clearly in corporate financial performance.

CONCLUSION

In the context of contemporary interest in the role of accounting to sustain competitive advantage in today's liberalised economy, this paper deals with research into management accounting and IC. In this paper we have highlighted how intangible assets and intellectual capital (IC) are the keys to attaining and sustaining competitive

advantage for high IC firms. Relatively few studies have been reported on management accounting for IC. We have also examined the question of whether the level and shape of intellectual capital within firms influence management accounting. We have offered findings based on case studies on six large Malaysian companies that had high levels of IC. Our research suggests that companies that better manage their IC would have better performance. Corporate culture also influences IC management and performance. Further studies should explore in greater depth how IC influences other practices in accounting such as financial accounting and auditing.

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