

UTILISING THE INFORMATION IN SECURITY PRICES WITHIN STRATEGIC MANAGEMENT ACCOUNTING

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ABSTRACT

A key element in the development of management accounting information systems is the identification of data sources from which strategically relevant information can be obtained. The argument forwarded in this paper is that the information content of security prices is a rich, relatively unbiased, timely and easily accessible data source which has a potentially fruitful role within the realm of strategic management accounting. The central aim of the present work is to encourage inter-disciplinary research on the potential of this information source for activities such as environmental scanning, budgeting/planning and competitor analysis.

INTRODUCTION

While the notion of strategic management accounting has recently been the subject of a revival in the management accounting literature, the core concepts underlying the linkage between accounting and strategy are not new. As Simmonds (1981) points out, the case for the strategic role of accounting was discussed at an international conference of the National Association of Cost Accountants in the USA as early as 1932. However, this aspect of the discipline of management accounting was neglected relative to the interest shown in other issues. For example, it is Simmonds view that:

'For every treatise that has proclaimed the accountant's role in strategy, a thousand papers have outlined some picayune aspect of a standard cost system.'

However, a review of current management accounting literature suggests that the role of accounting in strategy formulation and implementation has recently been the subject of increased attention among both practitioners and academics. An important conceptual paper by Bromwich (1990) utilised contestable markets and characteristics of

goods theories to provide a framework for examining the role of accounting in strategy. Based on these ideas Bromwich has provided a definition of strategic management accounting as:

‘The provision and analysis of financial information on the firm’s product markets and competitors’ costs and cost structures and the monitoring of the enterprise’s strategies and those of its competitors in these markets over a number of periods.’

From this definition it is evident that a key purpose of strategic management accounting is the provision of appropriate information for strategy formulation and adjustment. Currently, many different data sources such as published accounting reports, security analyst reports and economic reports are used in order to provide strategic management accounting information. The aim of the present work is to highlight the importance of a potentially rich, relatively unbiased and easily accessible information source which, to date, has not generally been conceptualised as being of particular use within strategic management accounting systems. This source is known in the financial markets research literature as the information content of security prices. The arguments presented here are based on the premise that security prices as determined by the aggregate capital market contain a significant information content for both quoted and non-quoted companies. The central theme of this paper is that this information content would appear to have a potentially useful role within strategic management accounting information systems. However, it is recognised that much research is needed before the ideas presented here can be incorporated into operational management accounting systems. A major purpose of the present article is to provide a conceptual basis for undertaking this type of research as well as outlining a number of potentially worthwhile avenues for subsequent work.

The paper is structured in the following manner. Initially, the notion of the information content of security prices is examined in a non-technical fashion from a number of perspectives. The aim of this discussion is to establish the extent of the information content in security prices. Subsequently, a number of issues relevant to the incorporation and utilisation of security price-based data in accounting information systems are addressed. A key message from this section of the paper is that an inter-disciplinary research programme is needed in order to tackle the practical issues involved in the implementation of the ideas presented in this work. The potential uses of the information content of security prices within the realm of strategic management accounting are examined in the next section. In particular, it is proposed that security price data

may have a particularly important role within the areas of environmental scanning, planning/budgeting and competitor analysis. Concluding comments are offered in the final part of this article.

THE INFORMATION CONTENT OF SECURITY PRICES

The information content of security prices has been established in a number of different avenues of the accounting and finance literature. In this section, insights from these various strands of research are brought together and examined under each of the following headings:

- Security prices and accounting information
- Security prices and forecasting models
- Security prices and management forecasts
- Security prices and real economic indicators
- Security prices and accounting information.

Security Prices and Accounting Information

Casual analysis of published accounting reports suggests that they contain a large array of potentially useful information with regard to the activities of an enterprise. However, due to the ability of market participants to glean relevant information from alternative sources, it appears that security prices have the potential to anticipate changes in earnings on a more timely basis than published accounting reports. Beaver, Lambert and Ryan (1987) undertook an empirical investigation of this issue. Overall, their findings are consistent with the notion that share prices reflect some information on a more prompt basis than earnings data.¹

However, the information content of security prices with regard to accounting earnings is not likely to be homogenous across all firms. Because there is a broader and richer information set available about the activities of larger firms *vis-à-vis* smaller firms, it is likely that there will be a differential information content in security prices depending upon firm size. This hypothesis is confirmed by Collins, Kothari and Rayburn's (1987) work which shows that the current price changes of larger firms represent a more accurate and efficient estimate of changes in expected future earnings than those of smaller firms. The information content of security prices in relation to accounting information in the United Kingdom was examined by O'Hanlon (1992). His research suggests that share prices in the London market do have an information content with regard to future accounting information. O'Connell's (1991) work on the Irish market implies that, overall, the information content of

security prices with regard to future accounting information is not significant. However, for the larger firms in the sample, Irish security prices do appear to have an important information content *vis-à-vis* future accounting results. Thus, the differential information content dependent upon firm size which is evident in US security prices also appears to exist in the Irish market.

Security Price and Forecasting Models

Given the tendency for security prices to reflect information on a more timely basis than earnings, Beaver, Lambert and Morse (1980) hypothesised that share prices can be used to predict future financial results. In order to test the forecasting ability of security prices they used a price-based forecasting model and compared it with the traditional random walk with drift model. Commenting on their overall results Beaver et al. (1980) state that while theirs' was an extremely preliminary analysis, it suggests that earnings forecasting models which incorporate share price data may be able to outperform a random-walk model which has exhibited a robustness against challengers over a long period of financial markets research.

Collins et al. (1987) set out to explore the information content of prices with respect to future earnings by focusing on firm size and its relation to the predictive accuracy of security prices *vis-à-vis* univariate time series models. Their results show that for smaller firms, the time series models outperform the price-based models. However, for the largest firms, they found that the price-based model yields a significant improvement over the random walk model. These findings led Collins et al. to conclude that security price changes in the current year do provide incremental information about the performance of the entity in the coming year

Security Prices and Management Forecasts

Further evidence regarding the information content of security prices was presented by McNichols (1989) who undertook a study to assess whether stock prices contain information beyond that reflected in management earnings forecasts. Her methodological approach was based on the premise that security prices are interpreted as containing information not in management forecasts if, in the period before or at the announcement of management forecasts, stock returns vary positively with forecast errors after controlling for forecast deviations. Her results suggest that management forecasts do not fully reflect information about earnings that is aggregated in stock prices.

She forwarded two possible explanations as to why stock prices tend to

reflect information about earnings beyond that contained in management earnings forecasts. First of all, forecasts may be purposely biased in that managers strategically disregard some information. The other possibility is that investors have access to information that managers do not incorporate into their earnings forecasts. Having undertaken a number of tests on the first hypothesis, McNichols concluded that while management may tend towards optimism, overall, this tendency is very weak. Thus, given the lack of evidence illustrating bias in management forecasts, McNichols concluded that her findings were probably attributable to an apparent trend among professional investors to have better information about macroeconomic or industry conditions than corporate management.

Security Prices and Real Economic Indicators

From the McNichols (1989) result it is evident that investors may have a better insight into the implications of macroeconomic factors for individual companies than even the management of those companies. One potential explanation for this assertion is that market participants may impound information likely to have an impact on future economic performance before such data is made publicly available. Huang and Kracaw (1984) set out to investigate the information content of US security prices at the aggregate level in order to gain insights into the ability of the market to impound macroeconomic information. Their results show that the variance of stock market returns leads changes in the log of real GNP and Unemployment while, at the same time, measures of real activity do not lead variations in share returns. These findings are consistent with the notion that the US equity market is efficient in absorbing economy-wide information relevant to production decisions. Kamarotou and O'Hanlon (1989) studied the information content of security prices in the United Kingdom market with regard to real macroeconomic indicators. They found that changes in economic indicators tend to lead stock market volatility. This result implies that the London market reacts to the publication of data about past economic performance more strongly than it reacts to information likely to affect future economic performance. Therefore, the information content of security prices in the London market may not be as significant as it is in the United States.

Donnelly's (1989) work provides a number of insights into the information content of Irish security prices at the macroeconomic level. His research shows that the variance of stock market returns in Ireland is led by changes in production output. No relationship between the stock market and other macroeconomic variables in either direction was evident. Overall, his work may suggest the existence of lagged reactions

to the publication of some macroeconomic information (similar to that reported in UK studies) although other factors may be responsible for the reported results.²

In summary, the research discussed in this section suggests that:

- Some information regarding a firm's activities (particularly in the case of larger firms) is impounded in security prices before its publication in accounting reports
- The information in security prices is useful for forecasting purposes
- Security prices reflect some information about an enterprise which even top management of that firm are not fully aware of
- Security prices are often useful lead indicators for future macro-economic trends.

From these perspectives it appears that security prices do have a significant information content. A consideration of the issues involved in capturing this information content within strategic management accounting systems is now presented.

CAPTURING THE INFORMATION CONTENT OF SECURITY PRICES FOR STRATEGIC MANAGEMENT ACCOUNTING

When examining the practical application of the ideas presented in this paper, it is important to consider the caveat contained in Currie, Donnelly, Fahy and Murphy's (1992) commentary on contemporary management accounting practice. They suggest that:

'The development of strategic management accounting will most likely require an interactive approach akin to that proposed in the literature of decision support systems. A whole new literature of "off the peg" accounting techniques is unlikely to provide any useful solutions to the difficult problems and decisions faced by top management.'

Because the information needs of management are contingent upon factors which are unique to particular firms, it can often prove counter-productive to attempt to develop 'universal' techniques which have general applicability. Thus, no attempt is made here to propose a set of procedures for using share prices in accounting information systems. The view taken in this paper is that issues related to the incorporation and utilisation of the information content of security prices require substantial research within a multidisciplinary framework.

It should be noted that the difficulties involved in utilising the information in security prices within accounting information systems are in many ways analogous to the problems associated with using any data source within the realm of strategic management accounting. For example, there are no definitive methods for utilising the data in analyst or media reports within accounting systems yet these are two commonly used sources for strategic management accounting activities. Similarly, capturing the information in security prices can never be an exact science. Ideally, the proposed research effort would involve a combination of relevant insights from the fields of finance and accounting information systems. Perspectives from the field of accounting information systems could focus on the technical, cultural and political consequences of incorporating security price data within these systems. These issues are of central importance to the overall argument presented here and require further research within the interdisciplinary framework already mentioned. Inputs from the finance discipline into this process would be largely concerned with techniques of measuring the information in security prices. Typically, security price-based information is captured in the finance literature utilising cumulative abnormal returns (CARs) based on a benchmark derived from a model such as the Capital Asset Pricing Model. These benchmark models help separate the economy-wide influences on a security from the firm specific factors which tend to influence the share returns. In the context referred to in this paper, the simplest methods possible should be utilised even if they lack the theoretical rigour required for an academic study in finance.

Any researchers involved in this area should be aware that the principle of utilising the information in share prices within accounting information and management control systems is already well established both in practice and in the academic literature. For example, when choosing the rate at which to discount a project's future cash flows, conventional theory suggests that the relevant cost of capital be determined with reference to the Capital Asset Pricing Model. This model is derived from statistical techniques which utilise past security prices. In addition, with regard to those control and information mechanisms connected with employee rewards, it is not unusual to find remuneration packages tied to an enterprise's performance in the stock market. Also, the performance of top management will often be evaluated by directors and shareholders with reference to movements in share prices over a period. Finally, stock market prices are often used as inputs into key indicators utilised by management such as debt-equity ratios, price earnings ratios and valuation ratios. A more detailed discussion of how share price data is

used in each of these areas can be found in any of the more advanced textbooks on financial management.

In conclusion, much research is needed in order to develop the conceptual notion of utilising the information content of security prices within strategic management accounting into a feasible reality. The argument presented here is that this research should not be focused on developing prescriptive methods which would have universal applications. Instead, an inter-disciplinary approach to researching the issues is advocated. Ideally, this approach should be focused on illustrating how the information content in security prices can provide useful signals to management in certain contexts. An examination of a number of potentially fruitful avenues for this type of research is presented in the next section of the paper.

THE POTENTIAL ROLE FOR THE INFORMATION CONTENT OF SECURITY PRICES WITHIN STRATEGIC MANAGEMENT ACCOUNTING

A comprehensive definition of management control is provided by Simons (1990) who asserted that such systems are the formalised procedures for planning, budgeting, environmental scanning, competitor analysis, performance reporting and evaluation, resource allocation and employee rewards. Obviously, accounting information systems play key roles within each of the activities identified by Simons. From Bromwich's (1990) definition (cited in the introduction to this paper), it is apparent that three of the activities mentioned in Simons' (1990) commentary on management control are the particular preserve of strategic management accounting, namely:

- Environmental scanning
- Budgeting/planning
- Competitor analysis.

The discussion presented in the remainder of this section focuses on the potential of the information content of security prices as a data source for each of these functions of strategic management accounting information systems. As stated in the previous part of the paper, the aim of the arguments presented here is to illustrate the potential of the information in security prices as a data source rather than to provide a set of techniques for incorporating this data source in management accounting systems. Issues related to the practical operation of the ideas presented here are obvious avenues for further research.

Environmental Scanning

This activity could be considered as the search for surprises in the environment. Feldman and March (1981) (cited in Simons, 1990) suggest that environmental scanning is an important activity for top management. They argue that:

'Organisations as well as individuals, ... gather information that has no apparent immediate decision consequences. As a result, the information seems substantially worthless within a decision theory perspective. The perspective is misleading. Instead of seeing an organization as seeking information in order to choose among given alternatives in terms of prior preferences, we can see an organization as monitoring its environment for surprises (or for reassurances that there are none). The surprises may be new alternatives, new possible preferences or new significant changes in the world.'

Given the key importance of surveillance, it is interesting to consider the McNichols (1989) suggestion that share prices incorporate information about an enterprise which even top management of that enterprise are not aware of. At least part of the reason for this phenomena is that professional investors and analysts appear to be more adept than management at predicting and assessing the impact of future economic trends on corporations. Based on this line of thought, it is evident that at least some of the surprises in the environment could be rapidly communicated to management *vis-à-vis* the movements in security prices. From these perspectives, security prices may be a potentially informative data source for the purposes of environmental scanning. Obviously, one cannot provide 'off the peg' answers to questions such as how the management of a firm should react to the share price movements of a particular industry/firm. The particular response will, of course, be contingent on the circumstances of an individual firm. In essence, the kernel of the argument presented here is that security price movements can often point to an underlying reality which may be worthy of further investigation by management. Security price movements can only provide a signal to such investigations – they cannot reveal the full picture in and of themselves. However, because of the established information content of security prices, share price changes may prove to be a very useful signal for top management in the area of environmental scanning.

An example of environmental scanning in practice is presented in a strategic management accounting case based on field research undertaken by Rickwood, Coates and Stacey (1990). Their work

focuses on Stapylton Ltd which operates in the hygiene and cleaning materials industry. At the time of the case the company was concerned with the type of response it should make to action taken by a major competitor. The competitor's action was perceived to be posing a threat to Stapylton's market position. To counter this threat, special-purpose data was collected from both internal and external sources. In the opinion of the authors of the case, the management accounting function was of central importance in terms of capturing and stimulating the creation of new information. To this end, the management accounting information system utilised among many other sources for their environmental scanning activities:

'Public information contained in the press, in broker reports ... and in financial reports ... The next major information source was provided by Investment Analysis undertaken by stock brokers who had been looking at the industry. This type of analysis contains confirmation of existing practice but extends to providing informed estimates of forecast company activity volume, capital investment plans and labour changes.'

Thus, it appears that management accountants already utilise information provided by stock market participants such as security analysts for the surveillance activities within Stapylton. From the earlier discussion on the information content of security prices *vis-à-vis* management forecasts and macroeconomic indicators, it is evident that share prices impound some economically significant information prior to its official publication. Thus, by monitoring the security prices within an industry, management may glean insights into the overall trends within a particular sector. Obviously, this type of analysis can provide only broad indicators but these signals might be potentially useful in the context of the environmental surprises referred to by Feldman and March. A more detailed investigation of this issue appears to be a potentially worthwhile avenue for future research.

Budgeting/Planning

The Collins et al. (1987) results discussed earlier suggest that the incorporation of price-based information could help management to improve their forecasting models. From that viewpoint, it may be beneficial to incorporate this information source in a direct fashion within a company's formal planning processes. In a related vein, given the information content of security prices at the macroeconomic level, it is possible that corporate planning and budgeting processes could also benefit from forecasts which utilise information gleaned from the aggregate wisdom of the capital market as impounded in security prices.

These possibilities appear to merit further management accounting research in the area of forecasting and planning.

Competitor Analysis

In a manner similar to that in which security prices could be utilised for the purposes of environmental scanning, the share prices of competitors can be a potentially worthwhile information source for monitoring those opponents. For example, Simmonds (1981) suggests that a key task of strategic management accounting is that of monitoring the cash resources of competitors because large reserves of funds could give a particular rival sufficient leverage to engage in aggressive strategic tactics. To guard against this possibility, Simmonds suggests compiling a competitor business portfolio using cash projections over a medium term period. However, utilising the logic presented in this paper, one could also argue that the information contained in a competitors' share price movements over time could provide useful indications with regard to that competitor's future cash flow. This is only one example of how share prices may be a potentially useful tool in the realm of competitor analysis. The key idea is that strategic management accounting information systems should monitor the security returns of a firm's competitors in order to utilise the benefits of the capital markets' collective perception of those competitors' actions. For similar reasons, Foster (1986) suggests that auditors should monitor the security returns of their clients when deciding whether to make detailed investigations of the accounting or reporting problems of those clients. Again, future research should explore the potential usefulness of security prices as an information source for competitor analysis. Those interested in developing this type of research should be aware that the information in security prices may be a significant source even for those companies whose shares are not traded on the stock market. Such organisations can still utilise share price data to monitor the activities of quoted rival firms.³

CONCLUSION

Strategic management accounting is the subject of increased attention among researchers and practitioners involved in the disciplines connected with accounting information systems. An important issue within the topic area is that of providing information relevant to key environmental and competitive uncertainties. For this purpose a wide variety of information sources are currently being utilised. The arguments presented here suggest that the information content of

security prices may also be a potentially very useful data source. Although a large body of research has established that security prices have an information content, the potential role of this information source within management accounting has not been considered in the literature to date. While the issues related to incorporating this information source within accounting information systems require much research within an inter-disciplinary context, this research effort may well prove to be a rewarding activity. In particular, the information content of security prices may prove particularly useful within the areas of environmental scanning, budgeting/planning and competitor analysis. The potential benefit from undertaking research along the lines suggested is that a timely, relatively unbiased and easily accessible data source could be harnessed as a means of assisting the strategic management of an enterprise. If the issue of investigating the potential role of the information content of security prices within strategic management accounting becomes an accepted part of the research agenda, then the present paper will have achieved its objective.

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NOTES

¹ Given the apparent existence of anomalies such as the post-earnings-announcement drift (Bernard and Thomas, 1990), it is clear that the information content of security prices with regard to future earnings is not in any sense, 'complete'.

² Donnelly (1989) points out that any interpretation of the Irish results must be premised on the facts that a large proportion of Irish public companies are diversified abroad and many multi-nationals which operate in Ireland are not quoted on our stock exchange.

³ The information content of security prices may not be a useful source of intelligence in some circumstances (for example, for organisations operating in sectors of the economy where the shares of sectoral participants are not traded on the stock market, for example, universities, charities etc.).

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