

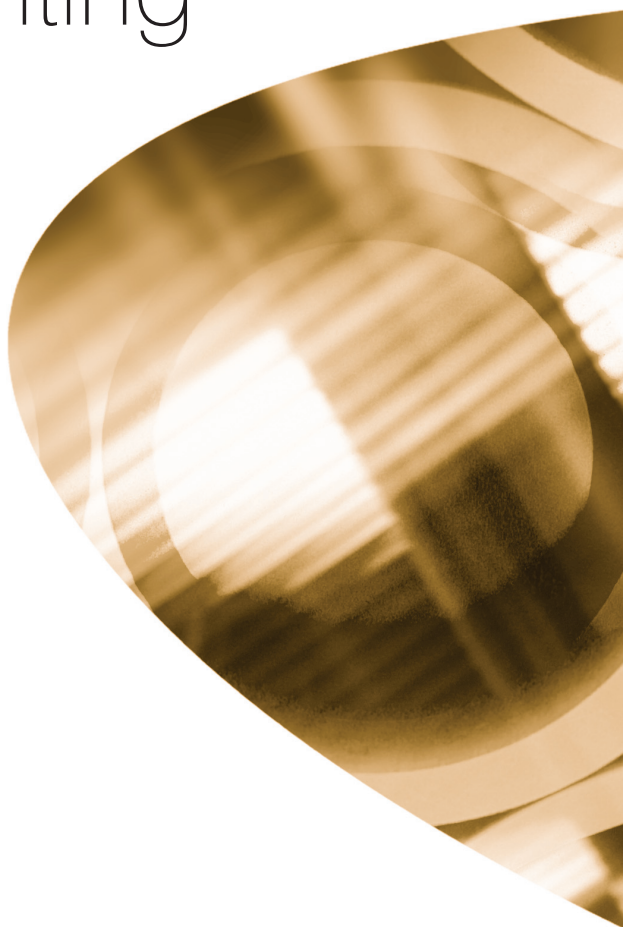
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**Accounting and management
control**

Guest Editors: Julia Mundy, Yves Levant
and Oliver de La Villarmois



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Accounting and management control

Guest Editors

Julia Mundy, Yves Levant and Oliver de La Villarmois

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Accounting and management control

Accounting and management control are major concerns for organisations of all types. Management control, including management accounting, involves the use of a variety of problematics and methodologies to help organisations to achieve their objectives. This special issue of the *Journal of Applied Accounting Research (JAAR)*, co-guest edited by Oliver de la Villarmois of the University of Lille, Yves Levant of the SKEMA Business School, and myself, presents a series of studies that demonstrate the range of topical issues, as well as the variety of both traditional and interdisciplinary perspectives, that focus on the role and use of accounting and management control in practice. It aims to contribute to the existing theoretical and methodological literature in the field of accounting and management control while also responding to calls for greater practical relevance of our research.

This special issue has the unusual distinction of containing only one British author among its five papers. With three articles from France, one from Canada, and an Egyptian co-author, the issue provides insights into theoretical themes that are of recurring interest to researchers and practitioners in countries not highly represented in previous issues of *JAAR*.

The edition includes five papers that each addresses a different aspect of the use of accounting and control from a range of perspectives. The first paper, by Cavélius, is concerned with an issue little explored by researchers but of great relevance to practitioners: the reconciliation of internal communication of financial measures with those required for disclosure. The paper aims to develop theory by drawing on data collected from 55 large firms to construct a typology of “practice” that characterises firms according to how they use information from accounting systems to disclose financial information to their investors. By defining two dimensions (static/dynamic and voluntary/conformist), the paper presents a taxonomy for categorising four different approaches to financial disclosure.

In addition to contributing to both the theory and practice of financial disclosure, Cavélius’ paper demonstrates the importance of undertaking empirical research at the interface of management accounting and financial accounting. Research that combines both fields of accounting are relatively scarce, but this paper serves to remind us that they are inextricably linked, and that this link is likely to have crucial implications for the use of reporting and control throughout the organisation.

The balanced scorecard (BSC), an enduring topic for management control research, is the focus of our second paper. The well-documented problems with the BSC since its appearance 25 years ago partly explain its continuing appeal to both researchers and practitioners alike. Naro and Travaillé’s paper aims to address the criticisms surrounding the theoretical underpinnings of the Balanced Scorecard. They employ Simons’ (1995) levers of control framework to investigate how two firms use the BSC to align intended and emergent strategies. The study offers insights into how the design phase during implementation of a BSC represents an interactive lever of control that firms can exploit to formulate strategy and build consensus around its strategic plans. The levers of control framework has been used in a number of academic studies to investigate various aspects of management control but has received much less

exposure in the practitioner-focussed literature. Simons developed the framework partly from inductive studies based on direct observations in a number of large organisations, a fact that alerts us to the potential for utilising the framework more directly to investigate issues of relevance to practitioners. For example, while practitioners may be interested in acquiring a range of tools and processes to help them implement organisational strategy, the levers of control framework can provide insights into how their use, rather than their existence, affects organisational outcomes.

The third paper in this special issue, by de la Villarmois and Levant, explores the implementation phases and associated uses of data arising from a French costing method, UVA (Added Value Unit). While similar to ABC, UVA has a number of apparent methodological advantages that render it popular with smaller firms, particularly in France, that lack the resources necessary to implement more complicated costing methods. The high utilisation rate of UVA suggests that these advantages warrant further investigation in the ABC literature.

Comparisons between ABC and UVA are reminiscent of a similar debate concerning the Balanced Scorecard and its French equivalent, the Tableau de Bord. This raises questions about the extent to which accounting innovations that are common in one country can be transplanted to firms in other countries. Studies of other innovations that deviate from the traditional Anglo-American models have the potential to increase the quality of tried and tested techniques available to practitioners, and journals such as *JAAR* provide a vital means for identifying and communicating the variety of accounting innovations in use across the world.

Gosselin's paper, the fourth in this special issue, employs a survey questionnaire to examine the influence of a range of contextual factors such as strategy, structure, and environmental uncertainty on the use of innovative performance measures. By providing insights into the use of a wide variety of financial, non-financial, outcome, and process measures across different contexts the study enhances our understanding of the influences over the implementation and use of innovative performance measures.

Finally, Elmassri and Harris explore a recurring theme in the management control literature; namely, how managers create and use budgetary slack. Elmassri and Harris extend recent research on the positive aspects of budgetary slack by reconceptualising it in terms of risk management. The paper contributes to the risk management literature by showing how budgetary slack can help organisations to mitigate planning and operational risks by providing contingencies to budgets beyond those included at higher levels of the organisation. The consideration of budgetary slack as an important element of risk management may cause practising accountants to view their budgeting processes in a different way.

In summary, the five papers included in this special issue demonstrate the range of accounting and management control issues that interest both researchers and practitioners alike. They raise a number of important points for researchers in the field of accounting and management control who wish to explore issues that are relevant to practice. First, there exists plenty of scope to investigate issues at the interface of different fields across management and financial accounting. While academics are careful to delineate their research into different fields of accounting, this dichotomy often does not exist in practice, particularly in smaller firms where accountants continually face challenges that cross the boundaries of research fields. Researchers can contribute to the practice of accounting and control by questioning the extent to which their research is both relevant and appropriate to practitioners. Second,

Anglo-American models inevitably dominate our literature, potentially restricting the range of innovations and approaches available to practitioners. If we are to increase our engagement with practice, then as researchers we have a responsibility to seek and investigate alternative models. Third, by taking different perspectives on popular themes, such as budgetary slack, researchers have the potential to radically alter the way that practitioners view common practices within their firms.

In a previous guest editorial to a *JAAR* themed issue, Brown (2009) expressed regret at the relatively small number of audit researchers who apply their expertise to problems that are rooted in audit practice. A similar criticism is often levelled at accounting and control research. Together with my co-guest editors I hope that this special issue illustrates just a small range of accounting control issues potentially of interest to both researchers and practitioners, and that it will encourage contributions from other researchers with similar ambitions to explore issues that are relevant to practice.

Julia Mundy
Guest Editor

References

- Brown, R. (2009), "Revisiting the expectations gaps after 15 years", *Journal of Applied Accounting Research*, Vol. 10 No. 2, pp. 92-5.
- Simons, R.L. (1995), *Levers of Control. How Managers Use Innovative Control System to Drive Strategic Renewal*, Harvard Business School Press, Boston, MA.



Opening the “black box”

How internal reporting systems contribute to the quality of financial disclosure

Florence Cavélius
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Opening the
“black box”

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Abstract

Purpose – Institutional investors use the information disclosed by listed companies to analyze the performance of their investments. The purpose of this paper is to open the “black box” of the construction of financial disclosure by analyzing the internal reporting systems of firms with reference to the information disclosed.

Design/methodology/approach – Using indexes, the quality of the financial disclosure and the internal reporting systems are measured, and analyzed with a view to finding some links between them. It is expected that the quality of disclosure is dependent on the quality of the internal reporting.

Findings – Complex interactions between internal reporting and financial disclosure are revealed, which leads to the identification of a typology of practices. The dependence of the relationship may be troubled by the willingness of the firm to communicate, or by the internal methods of control. According to the various cases, different levels of usefulness of the information for the investor are expected.

Originality/value – This paper is a first attempt to analyse information disclosed by firms with regards to the internal information at their disposal.

Keywords Financial reporting, Disclosure, Financial communication, Quality of information, Public and private disclosure, Indexes

Paper type Research paper

1. Introduction

Institutional investors use the information disclosed by listed companies to understand the strategic and operational key factors explaining their performance (Eccles *et al.*, 2001). This information has to possess a number of features or qualities that are essential to investors in order to ensure its usefulness.

Following the accounting harmonization in Europe, in 2005, which requires all EU-listed companies to adopt international accounting standards (IAS/IFRS), commission regulations must assess whether the application of accounting standards in financial statements offers a true and fair view of the financial position and performance of a company. The commission must check whether the financial information meet the criteria of “understandability, relevance, reliability and comparability” in order to make economic decisions and assess the stewardship of management (Article 3, Regulation No. 1606/2002). In fact, these requirements have been laid out by international regulations (IASB, 1111, IAS1) in terms of the following criteria: representativeness or fair view (the information accurately reflects the economic reality of the company), substance over form, reliability (the information is exempt from fault or error), relevance (it allows the investors to make decisions) including timeliness or

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accessibility (the information reaches its destination in due time), intelligibility, comparability.

While many researchers have studied the quality and the value of disclosed information (Copeland and Fredericks, 1968; Vickrey, 1985; Chow and Wong-Boren, 1987; Cooke, 1989; Bradbury, 1992; Raffournier, 1995), as far as we are aware, no one has tried to understand how this information was put together within the company. The information comes from internal financial and managerial accounting systems, especially from the company's internal reporting. To ensure the quality of disclosure, the information should necessarily be part of the reporting system and include the required qualities. Bushman and Smith (2001) thus point out:

In spite of distinctions between internal and external reporting, there is likely to be a positive relation between the managerial accounting information reported internally and the financial accounting reported externally [...]. Hence, managerial accounting systems are a potentially important omitted correlated variable.

This paper specifically addresses this call. The focus of this paper is thus to compare the quality of the information issued via internal reporting, and the quality of the information disclosed to investors. We contend that a community of practices should exist according to the link between these. To investigate this, the paper intends to compare and assess, from a sample of French listed companies, financial communication practices and internal reporting systems (IRS) by measuring their quality. The quality measure of both systems will then bring out a typology of practices, suggesting different possible use of information disclosed.

This paper makes two contributions: theoretical and practical. It first intends to contribute to both financial and managerial fields of accounting research. Indeed, financial scholars are more concerned with the reaction of shareholders to the information disclosed, with no interest in the internal reporting mechanisms of firms. On the contrary, management accounting research is interested in methods of measuring performance from an internal point of view, without any consideration for external views or needs, particularly those of investors. This paper tries to fill this gap.

From a practical point of view, we intend to reach practitioners as well: indeed, we believe that the more concern the financial controller has in terms of the needs of investors in matters of information, the more he will try to gather the "right" information from inside the firm, for the benefit of the internal management. On another hand, the closer the investor is to the firm, the easier it will be for him to collect the information he needs.

The remainder of the paper is organized as follows: Section 2 elaborates the theoretical context, in particular highlighting the criteria for quality for both internal reporting and financial communication practices. Section 3 introduces the research's methodology. Section 4 presents and discusses the results. Section 5 concludes and draws the implications of the findings for future research.

2. Quality of financial communication practices and IRS

2.1 Quality requirements for information disclosure practices

Researchers generally agree on three main points in terms of measuring the quality of information disclosure practices: the information extent, the vectors of disclosure, the periodicity and deadlines. Following signal theory (Spence, 1974), firms may be interested in standing out from their competitors by disclosing voluntary information

through voluntary vectors, and according to voluntary deadlines (Verrechia, 1983; Dye, 1986; Darrough and Stoughton, 1990; Healy and Palepu, 2001).

Regarding extent, institutional investors expect to have access to voluntarily released information from company managers, including management control information (Cavélius, 2007). Investors can then control their investment results, make decisions and play a cognitive role in utilizing new knowledge. Company managers must then submit and explain the information in private: this allows for two-way dynamic exchanges and learning between the parties, as well as facilitating investors to give their own point of view and perspectives (Holland, 1998). “This integrated approach to corporate disclosure should end up increasing a company’s value” (Hutton, 2004). The disclosed information thus includes segment information (partially required by IFRS 8 standards), forecast information (the budget becomes a tool for improving information disclosure, according to Miroir-Lair, 2007) and non-financial information (Decock-Good *et al.* (2004) and Cauvin *et al.*’s (2006) studies have established a list of the non-financial information generally disclosed). The presence or absence of this particular information within public disclosure determines the quality of the extent (Meeks *et al.*, 1995).

Concerning the vectors of disclosure, Holland pointed out, in his 2005 study, the four options company managers may choose:

- (1) Public disclosure: including mandatory as well as voluntary information; the company manager shows his willingness to disclose information (Jensen and Meckling, 1976), thus distinguishing himself from his competitors (Spence, 1974).
- (2) Semi-private disclosure: consisting in private discussions revolving around publicly disclosed information and interpretation, clarifications and answers to questions raised.
- (3) Private disclosure: consisting of in-depth discussions on strategy elements or operational aspects. This type of disclosure is rather informal and not necessarily supported by figures; yet it is essential to get a good grasp of the strategic and operational reality of the company.
- (4) Secrecy: no information that could lead to competitive or managerial disadvantage is disclosed; a reluctance to disclose uncertain events can also be added to this.

The quality of disclosure vectors can be measured thanks to the number of different channels of communication used: the internet, conference calls, investor and analyst meetings, as well as one-to-one meetings with company managers, etc. (Depoers, 1999).

As far as deadlines are concerned, the French stock market authorities, AMF, established compulsory disclosure deadlines in January 2007 (Transparency Directive): half-yearly full financial reports have to be disclosed within 60 days following the end of the period, and a quarterly financial disclosure (general description of the financial situation and segment turnover) must be provided within 45 days of the end of the quarter. The company can decide to willingly release quarterly financial reports in a shorter time period. A study by PricewaterhouseCoopers (2005) highlighted that the average time limit for quarterly publication is 29 days for SBF 120 listed companies (stock exchange index including the 120 most capitalized firms on the Paris stock exchange). We will consider this as the time limit for voluntary publication. Indeed, the

more frequently a company releases information in short time periods, the more valuable its disclosure is. Investors need to be informed regularly, and in a timely manner in relation to the events mentioned. For example, in the case of EADS, its shareholders were informed too late that the company's subsidiary, Airbus, was facing huge delays in the production, and this made the unexpected losses worse.

The previously specified requirements allow for the assessment of the quality of information disclosure in terms of extension, but not in terms of reliability or relevance. We may consider these aspects from an internal perspective through a close examination of the way the information is brought together in the company's internal reporting.

2.2 Quality requirements for company reporting systems

In order to meet the quality requirements of information disclosure, all company players must participate in the reporting. Beau and Pigé (2007) point out that "the financial information has gone beyond its original sphere of activity to reach and involve the operational managers as well".

First, the financial and management accounting consolidation systems must be merged to ensure the reliability of the information. "The processes of systems merging tend to provide the whole company with single, formalised and controlled information" (Beau and Pigé, 2007). The segment information obtained, along with the accounting information, is made accurate thanks to the international standards (Sunder, 2002), and the fact that the information is audited (Hope, 2003; Richard, 2003). Consequently, potential risks may be identified. However, this information remains past oriented, urging investors to pay more attention to the forecast information included in the company's budget.

To ensure the reliability of the forecast information, strategic targets must be the result of exchanges between operational entities and the head office. This idea echoes Goold and Campbell's (1987) strategic control model, as well as Simons's (1987) vision. The head office becomes involved both in the budget process and budget control, thus reducing the budget slack of the operational managers (Antle and Fellingham, 1997). This model also helps to identify the strategic control indicators to include in the reporting. Operational managers must become familiar with these indicators in order to drive strategy into operations. This is the balanced scorecard concept (Kaplan and Norton, 1996), whose importance has been stressed by Malina and Selto (2001) in the implementation of a strategic control. The non-financial indicators resulting from the driving of operations must be added to the strategic indicators.

According to Ittner and Larcker (1998), accounting-based indicators cannot measure performance alone. In 1996, researchers began to study the contribution of non-financial indicators, or key performance indicators (KPIs), which were usually identified as more representative of economic reality than financial information (Hemmer, 1996). Their presence within the company's reporting is questioned since, according to Arya *et al.* (2005), managers will prefer standardized measures which are much simpler and focused on comparability. These non-financial indicators are by definition linked to the company's activities and cannot always be standardized, especially in the case of a particularly diversified company. However, Bollecker (2003) has pointed out that the non-financial information within the management control systems improves the power control of the line authority. These results can be compared to the presence of non-financial information in the reporting, which helps the head office to better understand and control the performance of the entities. In the case

of a company with diversified activities, the designing of the reporting systems is more complicated because the selected non-financial data differs from one activity to another.

Along with the requirements for the reporting extent, financial markets push for shorter deadlines with regards to the release of companies' results (Mottis and Zarlowski, 2003). This also affects the internal reporting deadlines. According to Pigé (2005), the new technologies (ERP, and reporting and consolidation tools) enhance gathering and data processing capacities. Apparently, the systems no longer slow down the availability of the reporting information. Reducing the time limits and the periodicity of account closure is nonetheless essential for quick publication of the results. According to management control professionals referred to here, in order to meet external deadlines firms generally close their accounts monthly, within 15 days after the end of the month. We will consider this deadline as the quality criterion.

Having defined the essential requirements for meeting financial disclosure demands, the following Table I summarizes the criteria by type and nature of the information inside the reporting.

2.3 General hypothesis

The previous review allows us to distinguish quality criteria for both disclosure practices and IRS. We can say that the quality of the disclosure depends on the presence or absence of selected items in a general set of information, including voluntary information. But, according to the extant literature, we can say nothing regarding the qualities of reliability, relevance or representativeness, except if we have access to the internal reporting of the firm, and may measure the quality as mentioned before. Besides this, we are currently not able to find a link between both: do firms having “good” communication practices have a high level of internal reporting quality? May some firms disclose quality information without high levels of internal reporting quality? Do some firms have quality IRS whilst not disclosing the information? Our purpose is to answer these questions. We now present the methodology used in the current study.

3. Research method

3.1 Suggestions for a tool measuring the quality of the information

Finance researchers have often used the indexes (or scores) method to measure the presence of items in a system (Raffournier, 1995; Meeks *et al.*, 1995; Botosan, 1997; Ahmed and Courtis, 1999; Prencipe, 2004). This method is therefore considered as a valid measuring tool. It consists of a definition of a list of items selected according to their representativeness of the system to be measured. The grade “1” is attributed in the case that the item is relevant, and “0” is attributed if not. After the systems have been assigned a grade, they can be compared to one another. This also allows for the creation of groups and the testing of variables in accordance with the grades received. In order to compare information disclosure practices and IRS, both aspects have to be measured.

Concerning information disclosure practices, we will use the indexes suggested by Meeks *et al.* (1995), Michailesco (1998) and Depoers (1999, 2000) by adapting them to our context and to the new standards. We have identified a list of 65 items to measure the quality of these practices. The items measure the previously mentioned main themes for quality (extent, vectors and periodicity) and are selected according to the required qualities (see Section 2.1). The final number of items is not fixed a priori, and

Table I.
Quality requirements of
the reporting information

	Reliability criteria	Representativeness criteria	Relevance criteria	Accessibility criteria
Financial information including management control accounting	Unique information system – information established in accordance with international standards and audited by an external independent audit firm	Management accounting information linked to key success factors		An ERP that facilitates information accessibility – this is a single concept for the entire firm except when the activities differ from one branch to the other; time limit and periodicity of information: monthly reporting within 15 days after the end of the period
Non-financial indicators (KPIs)	Written calculation rules – indicators followed at the executive level and internally controlled	Non-financial indicators included inside the head office reporting – the right number of indicators must be selected	Selected by the head office in relation with the operational managers, they are locally used indicators, each measuring a strategic or operational target in association with traditional financial measures	
Forecast information	Captured in pre-established forms and obtained thanks to a top-down process, plus internal control of the estimations		Set by taking strategy into account – in consultation with the operational managers, a re-estimate is also included	

depends on the required elements. For instance, to measure the type of disclosure, we have set up a list of six possible vectors, each of which is an item.

To our knowledge, the indexes method has never been used to qualify IRS. Thus, we would like to suggest a measure for the reporting system based on items selected in accordance with the quality requirements mentioned above (see Section 2.2). The 55 finally selected items measure reliability, representativeness, relevance and accessibility. They are being selected in accordance with Table I, which specifies the expected features for each type of information. Considering the experimental aspect of the tool, this list of items has been finalized in collaboration with management control and reporting[1] professionals. The list of items was presented to a sample of professionals, who amended the list by suppressing irrelevant items or adding missing items according to their view.

These two indexes will now permit the measurement of the quality of reporting systems and financial disclosure practices with regards to a sample of listed companies.

3.2 Samples and score indexes method

The adopted methodology is quantitative. It leads to the constitution of a sample of contacts to whom the two questionnaires will be sent: one questionnaire concerns financial disclosure practices and the other focuses on the characteristics of IRS (refer to Appendices 2 and 3).

To minimize the variances linked to different practices, and to ensure reliable data, we have limited the population studied to the 250 largest French firms (except for the banking and insurance sectors, which have different practices in terms of internal reporting) listed on the 2005 Paris stock market (SBF 250 index). Previous studies have collected between 50 and 75 useful questionnaires, and thus we sent the two questionnaires to 150 randomly selected firms, expecting a minimum of a one-third return rate.

In the end, 55 firms returned both questionnaires. The sample distribution by index and branch of industry can be found in Appendix 1, along with a list of participating firms. The questionnaires were used to grade each criterion according to the answer received. In fact, each question was specifically related to one item. According to the answer, the criterion on a specific item was considered to be valid or not. The general method is as follows: for each criterion, an answer is expected, and is attributed the grade “1” if the system or the practices are in accordance with the criterion, or “0” if not. The grading is the result of a rigorous process with few errors of judgement since only one person deals with all the questionnaires.

Furthermore, the highest grade possible varies between the firms: some criteria do not apply to certain firms and are therefore removed from the maximum grade. This is in accordance with Meeks *et al.*'s (1995) method.

We obtain the N grade with the following formula:

$$N = \frac{\sum_{i=1}^T Ni}{NT}$$

where Ni is the grade obtained by criterion i , equal to 1 or 0, i is number of the item assigned with a grade 1 to T value, T is number of the last item after removal of criteria irrelevant to the firm, NT is amount of items assigned with a grade.

The grade obtained is a ratio value between 0 and 1. This grade has no value in itself; it merely helps to differentiate the selected firms from one another in order

to establish a sub-category of samples whose main features will highlight the typologies.

However, the dichotomy of the system (0 or 1) makes significant the number of firms conforming to the expected quality. For instance, a grade of 77.3 per cent (or 0.773) obtained from criterion number two indicates that 77.3 per cent of the firms in the sample explain their management methods in writing.

Considering the targets of the present study, we decided not to weigh this list of items. Indeed, the list has to adapt to every firm and not to a particular user, and each criterion participates equally in the definition of quality here. In addition, it has been suggested in Meeks *et al.*'s (1995) work that companies who are better at disclosing "important" items are also better at disclosing "less important" items. Moreover, the study by Chow and Wong-Boren (1987) proved that the results vary slightly between lists of weighted or unweighted items.

3.3 Analysis of the links between the two sets of score indexes

To analyse the two sets of measures, we use some descriptive statistics to analyse each of them separately. In order to highlight possible links between the variables, we use the Pearson correlation test. Before any calculation, we systematically check with a scatter plot whether or not a linear relationship exists between the two variables. The correlation coefficient, r , is a scalar quantity in the interval $[-1.0, 1.0]$, and is defined as the ratio of the covariance of the sample populations to the product of their SDs. The correlation coefficient is a direct measure of how well two sample populations vary jointly.

A value of $r = +1$ or $r = -1$ indicates a perfect fit to a positive or negative linear model, respectively, such that if one variable is known, the second can be accurately predicted. It consequently indicates a high degree of correlation.

A positive coefficient indicates that if one variable increases, the other increases also. A negative coefficient indicates that, if one variable increases, the other decreases.

A value of r close to 0 indicates a poor fit to a linear model, and no relationship between the two variables.

By using this test, we expect to answer our research question regarding the possible link between a high level of internal reporting quality, and good communication practices.

3.4 Constitution of sub-groups by the median and statistical cluster analysis

The firms can be ranked with the grade they have obtained for quality. The sample can now be cut by the median, thus supplying two sub-categories of firms: the group of firms who score above the median is considered to be in possession of quality management control information (or quality financial disclosure practices); in comparison, the other firms possess management control systems (or financial disclosure practices) of the lowest quality. By cross-checking both grading systems, we get four firm sub-groups: quality disclosure and quality reporting, quality disclosure and poor reporting, poor disclosure and quality reporting, poor disclosure and poor reporting.

As a means of control with regards to the obtained results, we decide to proceed to a statistical cluster analysis. This procedure attempts to identify relatively homogeneous groups of cases based on selected characteristics. In hierarchical clustering, an algorithm is used that starts with each case in a separate cluster and combines clusters until only one is left. The variables to be used for cluster formation here are the

disclosure quality index, and the internal reporting quality index. The variables are ordinal numbers between 0 and 1, with six decimals. The cases are the 55 firms. The cluster method chosen is the between-group linkage. Using the smallest average distance (measured here by the squared Euclidean distance) between all group pairs, the two groups that are closest are combined. The process continues until all cases are grouped into a large cluster.

The output of running hierarchical cluster analysis gives results very near to the ones obtained by the use of the median cut, as we can see in the following section. Indeed, it appears from Figure 1 that seven firms are not included in the same group, using either the median or the cluster method.

From here, we can analyse in a descriptive manner the main features of each sub-group. We can expect each sub-group to have different approaches to disclosure practices, and that investors will, accordingly, be in a situation where they are more or less able to control and manage their investment.

4. Results: focus on the typology of practices

4.1 General view of the cluster analysis and median cut of the selected firms

The following Figure shows the position of the cases according to the two axes quality of reporting, and quality of disclosure. Each firm is placed according to its obtained scores. The lines of both medians are indicated, constituting four sub-groups. On the same Figure, the curves show the four clusters obtained through the cluster analysis (dendrogram shown in Appendix 4).

It is noticeable from the Figure that only a few firms are placed differently, due to the fact they are very near the median score. We can say that some of them are probably in a hybrid position, either because their scores are near the median, or because they are on the way to changing their practices.

4.2 Descriptive analysis of the reporting systems of the selected firms

The firms' average IRS grade is 67.5 per cent (ranging from 40.8 to 88.2 per cent) (Figure 2).

The top priority for the firms in the sample is to ensure a good periodicity concerning the local units' information feedback to the head office, through integrated

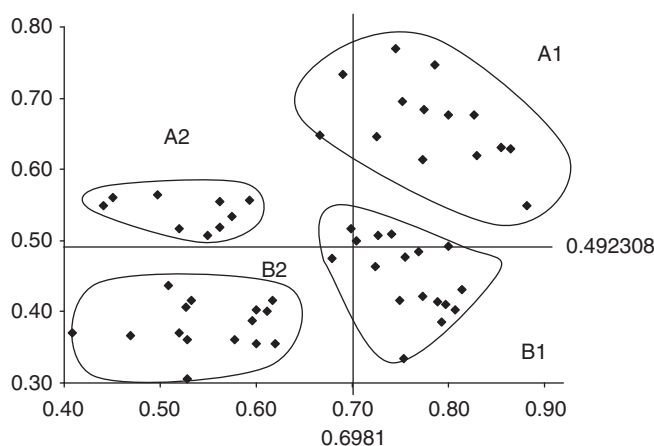


Figure 1.
Clusters overview

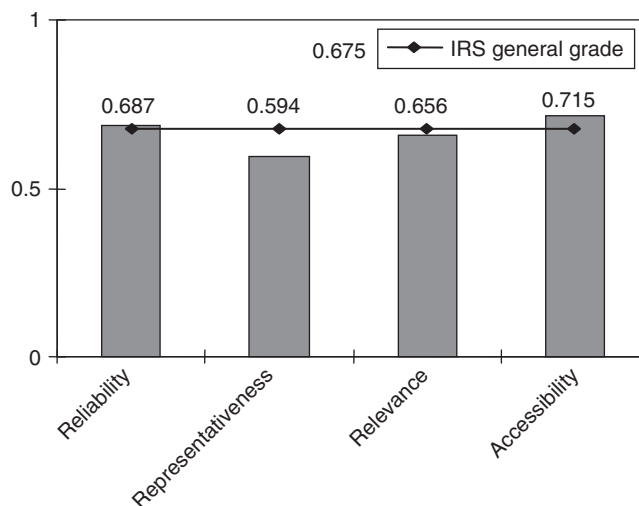


Figure 2.
Reporting system quality
overview

and interfaced tools. They can then make sure that the information is reliable thanks to the implementation of internal control procedures.

Firms are able to link strategy and control during the finalization stage (for instance strategy and control departments work in common, formulating an integrated plan and budget, using indicators selected by the head office). But they find it hard to implement strategic controls because they mostly choose financial indicators which do not allow them to secure the parameters linked to the activity, and so the supervision of strategic control. Finally, the differences between financial accounting and management accounting still exist in many firms, so that the internal information is not sufficiently oriented on external needs.

Each firm is assigned with a grade, which allows us to classify them by the median of the sample: above the median, they are assigned to group 1, named IRS + ; below the median they are group 2, named IRS-. We can comment on the analysis of the differences in the firms' characteristics as follows:

- The distribution by branch of industry does not highlight any fundamental difference between the sub-groups. Unsurprisingly, the sectors are equally represented on the whole, and there is apparently no reason that the industry branch affects the quality of the internal management accounting system.
- Size variables, however, indicate that internal information of better quality predominates for big companies (Student's test comparison of averages for both groups 1 and 2 are significant at the level of 6 per cent): 12 out of 14 firms from the CAC40 index (the 40 most capitalized firms) belong to group 1, whose average turnover is 9,452 million euros compared to 3,545 million euros for group 2.
- The "floating" variable, representing the shareholder percentage belonging to the public (including institutional investors to the exception of those possessing a capital percentage above 5 per cent), indicates that the percentage of public shares are more important for group 1. The *t*-test confirms these observations at the level of 1 per cent.

- Consequently, the grades assigned to group 1 are on average higher for each quality criterion, with the highest grade having been assigned to reliability, which is significantly higher than the grade given to group 2.

These last observations enable us to more closely analyse the differences that exist between both groups regarding the grading assigned, in order to highlight certain characteristics relative to each sub-group (Figure 3).

Two types of reporting can be identified:

- (1) *The reporting system of the firms belonging to group 1 can be defined as dynamic:* the system facilitates interactions between the head office and the operational levels; it is a communication tool made to convince; it is a management tool as it comprises specific indicators, linking strategy and operations together, and is defined in association with the operational managers. This reporting is considered as being more relevant because it includes information giving a representative and relevant view of the activity. Furthermore, emphasis is put on reliability (development of written procedures, implementation of internal control processes and uniqueness of information). Finally, periodicity and information reporting deadlines concerning the firms in this sub-group are much shorter.
- (2) *The reporting system of the firms belonging to group 2 can be defined as static:* this suggests a weaker interaction between the head office and the operational levels, with reporting being perceived as a performance check tool, including a majority of classic financial indicators that are mostly managed and calculated by management controllers. The periodicity and information reporting deadlines are a matter of control rather than management.

The better the internal reporting quality is, the better the quality of the disclosure should be. The analysis will continue by focusing on the grading of financial disclosure practices.

4.3 Analysis describing the financial disclosure practices of the selected firms

The firms from the selected sample have been assigned with the average grade D (disclosure) of 49.8 per cent (ranging from 30.6 to 76.9 per cent).

With regards to Figure 4, the firms in the sample generally use the vectors at their disposal. If they comply with international standards by actively disclosing the usual financial and strategic information, they are much more reluctant to release voluntary information such as segment information (which international standards made mandatory), forecast information or non-financial information, as shown by the grades obtained for these criteria. The periodicity and disclosure deadlines do not meet the

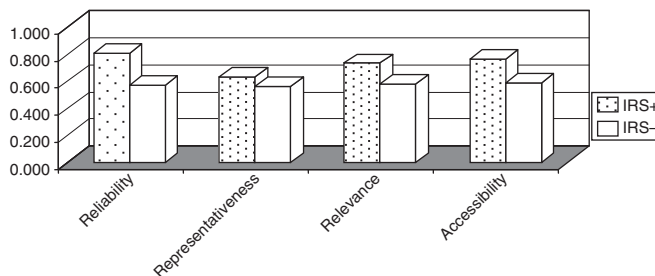
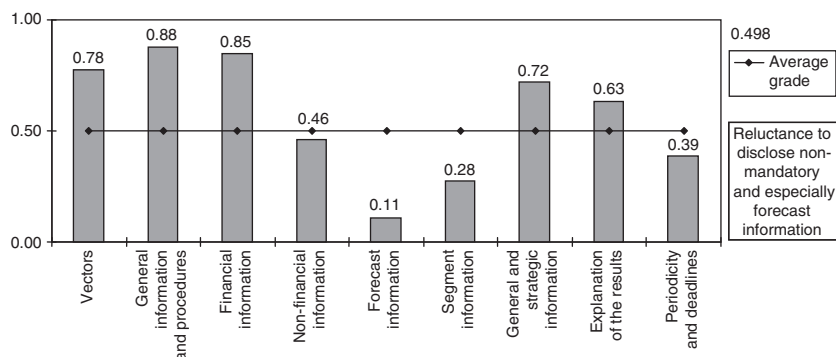


Figure 3.
Comparison of reporting
system quality between
IRS+ and IRS–

Figure 4.
Overview of the quality of
financial disclosure practices



investors' expectations, even though these deadlines remain shorter than the legal ones. This shows that the public disclosure's orientation is mainly conformist.

However, the firms are willing to provide complementary information in private, as well as any other element that could help to explain the publicly disclosed figures. This suggests that management control information is more likely to be exchanged in private, even if private and public communication work together, as Holland's (1998) study results showed.

The results are nonetheless contrasted when we look closely at both group practices provided by the sample median: the ones that score above the median are classified in group A, entitled D+; the ones below the median of the sample in group B are entitled D-.

The characteristics of the classifications can be explained as follows:

- Just as before, the distribution by branch of industry does not highlight any fundamental difference between the sub-groups. Again, unsurprisingly, the sectors are equally represented on the whole and there is apparently no reason for industry branch to be considered a key variable with regards to the quality of information disclosure.
- Size variables, however, indicate that publicly disclosed information of better quality predominates for big companies (Student's test of comparison of average for both groups A and B is significant at the level of 3 per cent).
- Contrary to the results regarding the internal information, the "floating" variable is not significant at the usual level of the Student's test, although it is higher on average for sample A firms.
- Consequently, the grades assigned to group A are on average higher for each quality criterion, yet we can notice that the highest quality grade concerns non-mandatory information (Figure 5).

The groups cannot be differentiated through general and financial information, or with reference to public disclosure vectors: the firms, even those who communicate the least, use new media.

Both new sub-groups can be defined as follows:

- *The financial disclosure practices of group A firms can be defined as voluntary and active.* The nature of the publicly disclosed information indicates that the firms are willing to keep their shareholders well informed: they disclose

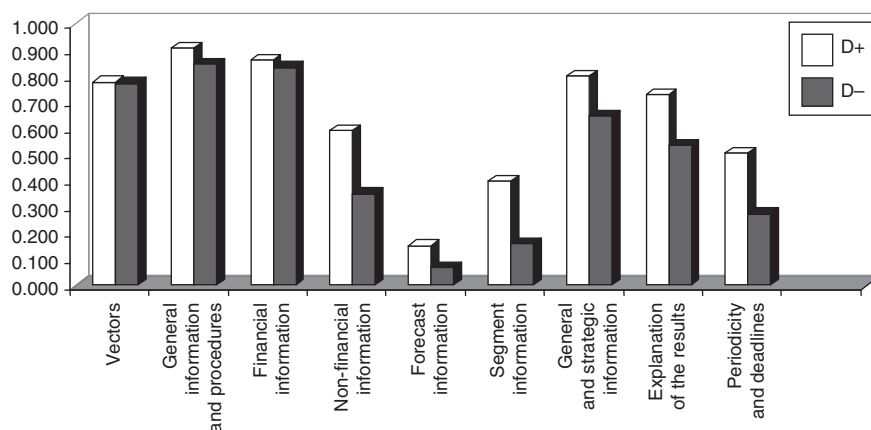


Figure 5.
Comparison of financial
disclosure practices
between group D+ and
group D–

non-financial information (59 per cent), forecast information (15 per cent) and segment information (40 per cent). They use diversified vectors of disclosure, including private ones. Firms express a desire to explain information, help interpret the results, and share a common vision by holding private or one-to-one meetings and site visits. Lastly, firms following these practices accept voluntary disclosure (within 30 days) along with frequent meetings. In addition, 26 per cent of firms disclose quarterly results. Communication is perceived as an exchange between investors and general managers.

- *The second type (group B) of public disclosure can be defined as conformist and goes along with private communication practices, which at best can be considered passive, and at worst secretive.* This group is characterized by permanent secrecy regarding the extent of information disclosed (this is mostly mandatory information; 35 per cent disclose non-financial information, only 7 per cent disclose forecast information and 16 per cent disclose segment information). The public means of disclosure are limited and the deadlines for results availability are usual (60 days).

In the case of passive and private communication, the results are reluctantly explained and questions barely answered. The attitude is more in line with conforming to best practices. Firms regard communication as a compulsory step to winning the market's favour. Private and secret disclosure reflects a withdrawn attitude characterized by the release of minimum information, and fear of competitors: indeed, minimum compulsory meetings are being organized. In other words, communication is perceived as a constraint.

We can draw a parallel between this typology and Gibbins *et al.*'s (1990), which opposes opportunistic disclosure (taking into consideration the advantages that disclosure can bring) and ritualistic disclosure (wishing to meet the standards). The results are also similar to those identified by Holland (2005).

Active and voluntary communication happens to be the qualities required by shareholders regarding disclosed information. This explains why the firms included in this sub-sample are likely to publicly disclose information of a better quality, management information in particular, considering the previously selected criteria.

4.4 Analysis of the results of the correlation test

Figure 1 showed that the two sets of variables do not seem to be correlated. The calculation of the correlation coefficient is 0.38, with a significance level at 0.32, which indicates a very low correlation. This is the first important result: an internal reporting of quality does not necessarily enhance good communication practices. Similarly, a reporting of poor quality does not necessarily mean bad communication practices.

If we consider each sub-group separately, we can expect better correlations between the two variables. The calculation of the correlation coefficient for each sub-group brings the following results (Table II).

The two sets of variables appear to be uncorrelated in the four sub-groups. This may indicate that the sub-groups are too small for the results to be significant. It can also be noted that the indexes are complex, and have to be analysed more deeply.

As we assume an internal reporting of quality should lead to good communication practices, and vice versa, we should be able to find correlations between the variables of A1 and B2 when put together. Similarly, the variables of A2 and B1 together should be negatively correlated. From the calculation, we obtain the following results (Table III).

This is the second important result. In the first sample, the better the quality of the internal reporting is, the better the communication practices firms have. On the contrary, reporting of poor quality is associated with limited communication practices.

In the second sample, on the contrary, a reporting of quality does not mean that firms communicate this information externally – in this instance, firms provide poor-quality disclosure. Similarly, firms may have good communication practices despite poor internal reporting quality. The two variables are negatively correlated.

The relationships seem to be more complex than expected; this suggests a need to follow the analysis a little further. Thus, the constitutive elements of each score are analysed more deeply as follows.

First, the internal quality of relevance and representativeness is compared to the disclosure of voluntary information (non-financial information, forecast information and segment information). This leads to new scores, to which the correlation test is applied. From the calculation, the following results are seen (Table IV).

It appears that, despite good results in communication practices, due to good scores in terms of vectors used and deadlines, A2 firms may be compared to B2 firms in terms

Table II.
Correlation between
A1/A2/B1/B2

	A1: IRS + /D +	A2: IRS – /D +	B1: IRS + /D –	B2: IRS – /D –
<i>R</i>	0.13	0.47	–0.08	0.37
<i>df</i>	13	10	10	14
Significance	0.32	0.6581	0.6581	0.5742
<i>p</i>	0.01	0.01	0.01	0.01

Table III.
Correlation between
A1B2/A2B1

	A1: IRS + /D + B2: IRS – /D –	A2: IRS – /D + B1: IRS + /D –
<i>R</i>	0.83	–0.57
<i>df</i>	29	22
Significance	0.4093	0.4921
<i>p</i>	0.01	0.01

of poor quality in voluntary disclosure. Indeed, A2 firms provide poor internal reporting information in terms of relevance, and do not allow for the disclosure of voluntary information. This is the third important result. In contrast, it appears here that good communication in terms of content (presence of voluntary information) is possible if the internal reporting is of a good quality in terms of relevance (group A1).

The A2B1 firms both exhibit poor quality of voluntary information disclosure. However, A2 firms do not provide relevant information in their reporting, while B1 firms have this information but do not disclose it. This is why the variables of relevance and voluntary information disclosure are independent in A2B1.

We then try to find links between internal quality of relevance and private disclosure quality. This score includes vectors of communication, content and periodicity and deadlines.

Proceeding to the calculation, the following results are obtained (Table V).

Analysing A1 and B2 together confirms the former results: the quality of private communication increases with the quality of reporting.

For the second sub-sample, a negative correlation is found, meaning that relevant information may not be disclosed even in private meetings, while a good score in private disclosure is possible even with poor internal reporting quality.

Finally, we compare the quality of accessibility of the internal reporting, and the deadlines of the external communication. The correlation test gives a 0.57 score on the sample as a whole, which indicates that the better accessibility score is, the shorter the deadlines will be for the external communication.

4.5 Synthesis of the results and interpretation in terms of the information's value for the investor

By intersecting both typologies, we formed a matrix and created four sub-groups. From the correlation analysis, some links between variables – or lack thereof – have

	A1: relev. + /vol. discl. + A2: relev. – /vol. discl. – B2: relev. – /vol. discl. –	A1: relev. + /vol. discl. + B2: relev. – /vol. discl. –	A2: relev. – /vol. discl. – B1: relev. + /vol. discl. –
<i>R</i>	0.69	0.70	0.08
<i>df</i>	31	29	22
Significance	0.4093	0.4093	0.4921
<i>p</i>	0.01	0.01	0.01

Notes: relev., relevance of the reporting; vol. discl., voluntary disclosure

Table IV.
Correlation between
relevance of the reporting
and voluntary disclosure

	A1: relev. + /private discl. + B2: relev. – /private discl. –	A2: relev. – /private discl. + B1: relev. + / private discl. –
<i>R</i>	0.62	–0.71
<i>df</i>	29	22
Significance	0.4093	0.4921
<i>p</i>	0.01	0.01

Notes: relev., relevance of the reporting; private discl., private disclosure

Table V.
Correlation between
relevance of the reporting
and private disclosure

been highlighted. Our findings are synthesized in Table VI. The existence of distinct groups formed by measuring the quality of practices suggests different potential uses for the information (Figure 6).

5. Conclusion

This study is a first step towards opening the “black box” of the construction of financial disclosure. It shows the complexity of interactions between IRS and financial communication practices.

By measuring the quality of internal reporting and communication practices, we expected to uncover a link between them: a firm disclosing information of quality

Table VI.
Typology of practices
from the investor’s
perspective

Analyses and interpretations	
A1: Voluntary (0.59) and active (0.64), dynamic (0.77): the “virtuous” Large firms with majority scattered shareholding	Thanks to the relevance and reliability of the reporting information, the financial communication is of high quality, either in terms of content or vectors There is a willingness to communicate and/or the investor is influential; the external orientation of the internal reporting system enables the investor to have the expected information at his disposal: numerous vectors of disclosure are used, and voluntary extent is supported by information coming from internal reporting whose information is reliable and relevant. The deadlines are voluntarily established. We can expect the information quality to positively influence the decision-making process
B1: Passive (0.47) and conformist (0.45), dynamic (0.75): the “secretive” Medium-sized firms with majority scattered shareholding	The reporting information is relevant and reliable, yet the unwillingness to disclose management control information and the restrictions on exchange periods illustrate the low quality of the financial communication There is a culture of secrecy; willingness to communicate is obviously nonexistent. The information exists internally but is not disclosed. The determinants for non-disclosure are still to be found out
A2: Voluntary (0.54) and active (0.60), static (0.60): the “illusionists” Medium-sized firms with minority scattered shareholding	The reporting information is less relevant, yet this does not discourage the firms from willingly communicating, as shown by the use of many private and public vectors of disclosure, even though the extent is of lower quality. The results in terms of deadlines and periodicity are generally good The firms are ready to communicate, or wish to be conformist, but danger lies in the potential for incorrect interpretation or incomplete analyses, since the internal reporting lacks relevance. Communication is constrained by the internal system, probably by internal management (unwillingness to set up strategic controls for the whole company)
B2: Conformist (0.42) and passives (0.42), static (0.58): the “indifferents” Small firms with minority scattered shareholding	Public disclosure of mandatory information is prevalent and communication is perceived as a constraint: the results are bad in terms of deadlines, poor voluntary information, few private exchanges, and poor content, frequency and means of exchange It is likely that the prevalence of concentrated shareholding does not urge external communication or influence the reporting system to that end

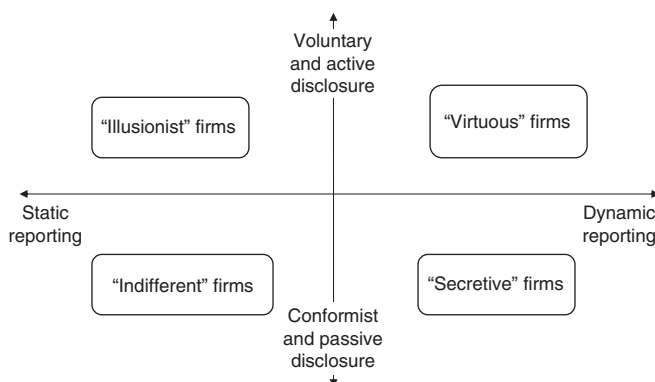


Figure 6.
Typology of disclosure
and reporting practices

should necessarily issue it from an IRS of quality. In the end, however, this is true for only some firms and we highlighted four different cases. To be in the situation whereby quality disclosure and quality IRS are both present, it is necessary for managers to intend to produce a disclosure of quality, urging them to improve their IRS. Managers may find external disclosure too costly, however, even when the information is in place internally. The explanatory factors for such an attitude were not revealed by the present study. For the third category of firms, the disclosure seems to be of a high quality, when in fact this is the case only for the large vectors used, either public or private; the content remains very poor, due to a poor level of internal reporting. The fourth group of firms seems to be indifferent to producing a disclosure of quality, and therefore do not feel a need to improve the quality of their internal reporting. This study increases our understanding of the way firms manage to deal with disclosure of information to investors, with regards to the internal information at their disposal.

This research makes a contribution to the academic fields of finance and management control. First, it allows us to confront two pieces of information that are generally dealt with in a dichotomous manner by researchers – internal information on one hand, and disclosed information on another hand; second, the method used comes from the field of finance, but it is used here to grade an internal management tool, which has never been done before. This method could be reproduced by control researchers for other purposes.

This research contributes to the visions of practitioners as well. It shows that the information has to exist within the IRS if the manager wants to disclose it. This urges the financial controller to pay close attention to the needs of the financial markets, and be able to answer the specific requirements. On the other hand, large firms, generally with a majority of floating shareholders, are urged to improve their financial communication in order for their investors to understand them better and not be unpleasantly surprised by the emergence of previously undisclosed information.

These findings raise questions for future researchers. First of all, we only establish links between variables, and the present work did not allow for any investigation relating to causality. A reporting of good quality seems to facilitate good communication practices, but we could say that good communication practices develop the quality of reporting. Second, we were not able to confirm the reactions of investors according to the quality of the combined reporting and disclosure. This could be done by testing the investors' expected reactions with relation to each sub-group. When the information is of quality, the market is expected to react positively, thus

proving that the information is understood and integrated. As a third point, the methodology did not allow for a deep exploration of how the voluntary information, such as non-financial indicators, is used in private exchanges between investors and managers. Finally, it would be interesting to bring to light the determinants of the non-disclosure of quality internal information.

Note

1. The full list of items for each index is available upon request to the author.

References

- Ahmed, K. and Curtis, J.K. (1999), "Association between corporate characteristics and disclosure levels in annual reports: a meta-analysis", *British Accounting Review*, Vol. 31 No. 1, pp. 35-61.
- Antle, R. and Fellingham, J. (1997), "Models of capital investments with private information and incentives: a selective review", *Journal of Business and Finance Accounting*, Vol. 24 Nos 7/8, pp. 887-908.
- Arya, A., Glover, J., Mittendorf, B. and Lixin, Y. (2005), "On the use of customized versus standardized performance measures", *Journal of Management Accounting Research*, Vol. 1, pp. 7-21.
- Beau, C. and Pigé, B. (2007), "La normalisation de l'information comptable dans le processus de gouvernance", *Comptabilité – Contrôle – Audit*, special issue, pp. 57-76.
- Bollecker, M. (2003), *Les mécanismes de contrôle dans un contexte de différenciation des systèmes d'information*, Cahier de Recherche, GREGOR, IAE Paris, Paris.
- Botosan, C.A. (1997), "Disclosure level and the cost of equity capital", *The Accounting Review*, Vol. 72 No. 3, pp. 323-49.
- Bradbury, M. (1992), "Voluntary disclosure of financial segment data: New Zealand evidence", *Accounting and Finance*, Vol. 32 No. 1, pp. 15-26.
- Bushman, R. and Smith, A. (2001), "Financial accounting information and corporate governance", *Journal of Accounting and Economics*, Vol. 32 Nos 1-3, pp. 237-333.
- Cauvin, E., Decock-Good, C. and Bescos, P.L. (2006), "La perception des entreprises françaises en matière de diffusion d'informations non financières: une enquête par questionnaire", *Comptabilité – Contrôle – Audit*, Vol. 12 No. 2, pp. 117-42.
- Cavélius, F. (2007), "L'information de gestion, critère de qualité de la communication avec l'actionnaire", Doctorat en sciences de gestion, Université Paris X Nanterre, Paris.
- Chow, C.W. and Wong-Boren, A. (1987), "Voluntary financial disclosures by Mexican corporations", *Accounting Review*, Vol. 62 No. 3, pp. 533-41.
- Cooke, T.E. (1989), "Disclosure in the corporate annual reports of Swedish companies", *Accounting and Business Research*, Vol. 19 No. 74, pp. 113-24.
- Copeland, R. and Fredericks, W. (1968), "Extent of disclosure", *Journal of Accounting Research*, Vol. 6 No. 1, pp. 106-13.
- Darrrough, M.N. and Stoughton, N.M. (1990), "Financial disclosure policy in an entry game", *Journal of Accounting and Economics*, Vol. 12 Nos 1-3, pp. 219-43.
- Decock-Good, C., Cauvin, E. and Bescos, P.L. (2004), "The communication of performance measures in French companies", 27th Annual Congress of the European Accounting Association, Prague, April.

- Depoers, F. (1999), “Contribution à l’analyse des déterminants de l’offre volontaire d’information des sociétés cotées”, Doctorat en sciences de gestion, Université Paris Dauphine, Paris.
- Depoers, F. (2000), “L’offre volontaire d’informations des sociétés cotées: concept et mesure”, *Comptabilité – Contrôle – Audit*, Vol. 6 No. 2, pp. 115-31.
- Dye, R.A. (1986), “Proprietary and non-proprietary disclosures”, *Journal of Business*, Vol. 59 No. 2, pp. 331-66.
- Eccles, R., Herz, R., Keegan, E. and Phillips, D.M.H. (2001), *The Value Reporting Revolution*, John Wiley & Sons, New York, NY.
- Gibbins, M., Richardson, A. and Waterhouse, J. (1990), “The management of corporate financial disclosure: opportunism, ritualism, policies, and processes”, *Journal of Accounting Research*, Vol. 28 No. 1, pp. 121-43.
- Goold, M. and Campbell, A. (1987), “Many best ways to make strategy”, *Harvard Business Review*, Vol. 65 No. 6, pp. 70-6.
- Healy, P.M. and Palepu, K.G. (2001), “Information asymmetry, corporate disclosure and the capital markets: a review of the empirical disclosure literature”, *Journal of Accounting and Economics*, Vol. 31 Nos 1-3, pp. 405-40.
- Hemmer, T. (1996), “On the design and choice of ‘modern’ management accounting measures”, *Journal of Management Accounting Research*, Vol. 1, pp. 87-116.
- Holland, J. (1998), “Private voluntary disclosure, financial intermediation and market efficiency”, *Journal of Business Finance and Accounting*, Vol. 25 Nos 1/2, pp. 29-68.
- Holland, J. (2005), “A grounded theory of corporate disclosure”, *Accounting and Business Research*, Vol. 35 No. 3, pp. 249-67.
- Hope, A.K. (2003), “Disclosure practices, enforcement of accounting standards, and analysts’ forecast accuracy: an international study”, *Journal of Accounting Research*, Vol. 41 No. 2, pp. 235-72.
- Hutton, A. (2004), “Beyond financial reporting – an integrated approach to disclosure”, *Journal of Applied Corporate Finance*, Vol. 16 No. 4, pp. 8-16.
- IASB (2001), available at: <http://www.ifrs.org/NR/rdonlyres/9FF9FC0F-FB42-4C5A-8B40-8A4E475F59E6/0/ConceptualFramework.pdf>
- Ittner, C.D. and Larcker, D.F. (1998), “Innovations in performance measurement: trends and research implications”, *Journal of Management Accounting Research*, Vol. 1, pp. 205-38.
- Jensen, M. and Meckling, W. (1976), “Theory of the firm: managerial behavior, agency costs and ownership structure”, *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-60.
- Kaplan, R.S. and Norton, D.P. (1996), *The Balanced Scorecard*, Harvard University Press, Boston, MA.
- Malina, M.A. and Selto, F.H. (2001), “Communicating and controlling strategy: an empirical study of the effectiveness of the balanced scorecard”, *Journal of Management Accounting Research*, Vol. 13 (September), pp. 48-90.
- Meeks, G.K., Roberts, C.B. and Gray, S.J. (1995), “Factors influencing voluntary annual report disclosures by US, UK and continental European multinational corporations”, *Journal of International Business Studies*, Vol. 26 No. 3, pp. 555-72.
- Michailescu, C. (1998), “Contribution à l’étude des déterminants de la qualité de l’information comptable diffusée par les entreprises françaises”, Thèse de doctorat ès sciences de gestion, Université Paris Dauphine, Paris.

- Miroir-Lair, I. (2007), "Le budget, outil de communication financière?", 28^{ème} Congrès annuel de l'Association Francophone de Comptabilité, Poitiers, May.
- Mottis, N. and Zarlowski, P. (2003), "Relations investisseurs et contrôle des marchés financiers", *Revue Française de Gestion*, Vol. 29 No. 147, pp. 161-72.
- Pigé, B. (2005), "L'enjeu de l'information comptable en matière de gouvernance", *Echanges*, Vol. 220, pp. 21-4.
- Prencipe, A. (2004), "Proprietary costs and determinants of voluntary segment disclosure: evidence from Italian listed companies", *The European Accounting Review*, Vol. 13 No. 2, pp. 319-40.
- PricewaterhouseCoopers (2005), *Various Studies with Observatoire Communication Financière*, PricewaterhouseCoopers, Paris.
- Raffournier, B. (1995), "The determinants of voluntary financial disclosure by Swiss listed corporations", *The European Accounting Review*, Vol. 4 No. 2, pp. 261-80.
- Richard, C. (2003), "L'indépendance de l'auditeur: pairs et manques", *Revue Française de Gestion*, Vol. 29 No. 147, pp. 119-31.
- Simons, R. (1987), "Accounting control systems and business strategy: an empirical analysis", *Accounting Organizations and Society*, Vol. 12 No. 4, pp. 357-74.
- Spence, M. (1974), *Market Signaling, Informational Transfer in Hiring and Related Screening Processes*, Harvard University Press, Boston, MA.
- Sunder, S. (2002), "Knowing what others know: common knowledge, accounting and capital markets", *Accounting Horizons*, Vol. 16 No. 4, pp. 305-18.
- Verrecchia, R. (1983), "Discretionary disclosure", *Journal of Accounting and Economics*, Vol. 5 No. 3, pp. 179-94.
- Vickrey, D.W. (1985), "Normative information qualities: a contrast between information-economics and FASB perspectives", *Abacus*, Vol. 21 No. 2, pp. 115-29.

Appendix 1. Data on the sample

Classification by index	% in relation to the total number of SBF 250 firms	Number of firms of the sample to contact	Number of firms that replied (useful sample)	% in relation to the total number of the sample	Reply rate (%)
CAC 40 index	15.6	23	11	20	47.8
CAC next 20 index	7.3	11	3	5.5	27.3
MID100 index	40.0	60	24	43.6	40
SMA 90 index	37.1	56	17	30.9	30.4
Total	100.0	150	55	100	36.7

Table AI.
Distribution of the sample by index

Classification by branch of industry	Number of firms in the useful sample	% in relation to the total number in the useful sample	% of the total number of the sample to contact	% in relation to the total number of the population
Energy	3	5.5	2.0	1
Chemicals	2	3.6	2.0	2.6
Construction and building materials	6	10.9	6.0	5.3
Wood, paper, steel	0	0	2.0	1.8
Industrial equipment	6	10.9	8.0	6.4
Engineering	1	1.8	1.3	4.6
Aeronautics, automotive	4	7.3	6.7	4.8
Textile, clothing, leather	0	0	2.7	4.2
Mass market and small equipment	1	1.8	3.3	6.2
Food processing	3	5.5	6.7	7.9
Healthcare and pharmaceuticals	2	3.6	11.3	7.7
Retail and business	4	7.3	7.3	6.8
Hotel, catering, leisure	3	5.5	3.3	3.5
Publishing, press, communications	2	3.6	6.0	5.9
Business and individuals services	6	10.9	11.3	6.4
Transport	2	3.6	3.3	3.7
IT and telecommunications	10	18.2	16.7	20.7

Table AII.
Distribution of the useful
sample by branch of
industry

Name	Index	Branch of industry
Air Liquide	CAC 40	Chemicals
Bouygues	CAC 40	Construction and building materials
Danone	CAC 40	Food processing
Eads	CAC 40	Aeronautics, automotive
Essilor Intl.	CAC 40	Healthcare, pharmaceuticals
Peugeot	CAC 40	Aeronautics, automotive
Renault	CAC 40	Aeronautics, automotive
Saint Gobain	CAC 40	Construction and building materials
Schneider Electric	CAC 40	Industrial equipment
Stmicroelectronics	CAC 40	IT and telecommunications
Vivendi Universal	CAC 40	Publishing, press and communications
Business Objects	CAC next 20	IT and telecommunications
Sodexho Alliance	CAC next 20	Business and people services
Technip	CAC next 20	Energy
Alstom	Mid 100	Industrial equipment
Altran Techn.	Mid 100	IT and telecommunications
Areva Ci	Mid 100	Business and individuals services
Bonduelle	Mid 100	Food processing
Ciments Francais	Mid 100	Construction and building materials
Club Mediterranee	Mid 100	Hotel, catering, leisure
Eurazeo	Mid 100	Industrial equipment
Eurotunnel Unit	Mid 100	Transport
Faurecia	Mid 100	Aeronautics, automotive
Fimalac	Mid 100	Business and people services
Galleries Lafayette	Mid 100	Retail, business
Remy Cointreau	Mid 100	Food processing
Sopra Group	Mid 100	IT and telecommunications
Alain Afflelou	Mid 100	Retail, business
Alpes	Mid 100	Hotel, catering, leisure
Bolloré Invest.	Mid 100	Transport
Bull	Mid 100	IT and telecommunications
Esso	Mid 100	Energy
GI Trade	Mid 100	IT and telecommunications
Groupe Bourbon	Mid 100	Energy
Kaufman and Broad	Mid 100	Construction and building materials
Manitou Bf	Mid 100	Industrial equipment
Manutan Intl.	Mid 100	Business and people services
Toupargel-Agrigel	Mid 100	Retail, business
Apem	Sma 90	Industrial equipment
Buffalo Grill	Sma 90	Hotel, catering, leisure
Cegid S.A.	Sma 90	IT and telecommunications
Delachaux	Sma 90	Engineering
Exel Industries A	Sma 90	Industrial equipment
Groupe Guillin	Sma 90	Chemicals
High Co.	Sma 90	Publishing, press and communications
Mr Bricolage	Sma 90	Retail, business
Neurones	Sma 90	IT and telecommunications
Prosodie	Sma 90	Business and people services
Radiall	Sma 90	IT and telecommunications
Sii	Sma 90	IT and telecommunications
Skis Rossignol	Sma 90	Mass market small equipment
Stallergenes	Sma 90	Healthcare, pharmaceuticals
Synergie	Sma 90	Business and people services
Thermador Groupe	Sma 90	Construction and building materials
Vm Materiaux	Sma 90	Construction and building materials

Table AIII.
List of firms in the
useful sample

- The relationship management control/strategy in terms of planning and budget construction, indicators selection and strategic control.
- The general types of information included within the reporting.
- The local/central relationship, in terms of indicators used on both sides in order to communicate strategically and operationally between both levels.
- Differences between general accounting and management control accounting.
- Differences between internal information and the information intended to be disclosed, or external information.
- Methods and internal control procedures.
- Quality of forecasts.
- Periodicity of the information reporting from base to summit.

Regarding the public and private disclosure practices

- The means used to communicate.
- The nature of the disclosed information.
- Explanation of the results.
- Completeness and clarity of the disclosed information.

Appendix 3

Part 1: Questionnaire regarding the quality of internal reporting

Q1.2 Internal reporting information system: links between Strategy and Management Control departments

1.2.1 Strategy and Management Control departments work together to formulate strategic plans and budgets.

True ☐ False ☐

1.2.2 When formulating strategic plans, each business unit within the firm elaborates its own strategy with input from all of the actors in the business unit.

True ☐ False ☐

1.2.3 In budget meetings, the business units’ point of view prevails over the general management’s.

True ☐ False ☐

1.2.4 Long-term objectives are not converted into medium and short term objectives.

True ☐ False ☐

1.2.5 The first year of the strategic plan is budget year.

True ☐ False ☐

(continued)

Figure A1.
Extracts of some of the
questions addressed in the
questionnaires

- 1.2.6 No general objectives are given to any business unit during the budget-formulation process; each business unit gives its own forecasts independently of the group's objectives.
- True ☐ False ☐
- 1.2.7 Qualitative and quantitative indicators are in place within the group reports, and this allows for management of the strategy adopted by the group.
- True ☐ False ☐
- 1.2.8 The indicators existing in the reports are chosen by the general management.
- True ☐ False ☐
- 1.2.9 Strategic control is formalized: each objective is managed with an indicator, and this indicator is regularly checked.
- True ☐ False ☐
- 1.2.10 Each report is followed by meetings wherein the results are discussed.
- True ☐ False ☐

Part 2: Questionnaire regarding the quality of communication practices

Q2 Public voluntary disclosure to shareholders.

Q2.1 Public disclosure vectors.

Among the following disclosure vectors, please tick the ones you use to communicate with your shareholders

- 2.1.1.1 Compulsory legal announcements ☐
- 2.1.1.2 General shareholders' assembly ☐
- 2.1.1.3 Press communications ☐
- 2.1.1.4 Internet ☐
- 2.1.1.5 Financial advertising ☐
- 2.1.1.6 Other ☐

Please specify:

Q2.2 Items listed in quaterly or bi-annual disclosures

Among the following items, please tick the ones you disclose via any of the previous vectors

- 2.2.1 General information on methods and procedures
- 2.1.1.1 Mention of the referentials used ☐
- 2.1.1.2 Mention of the principles and procedures used ☐
- 2.1.1. 3 Explanations linked to the consolidation perimeter ☐
- 2.2.2 Financial and accounting information disclosed
- 2.2.2.1 Profit and loss account ☐
- 2.2.2.2 Details of operating expenses ☐
- 2.2.2.3 Details of R&D expenses ☐
- 2.2.2.4 Cash position ☐
- 2.2.2.5 Cash flows ☐
- 2.2.2.6 Balance sheet or balance sheet elements (for example investments) ☐

Figure A1.

Rescaled Distance Cluster Combine

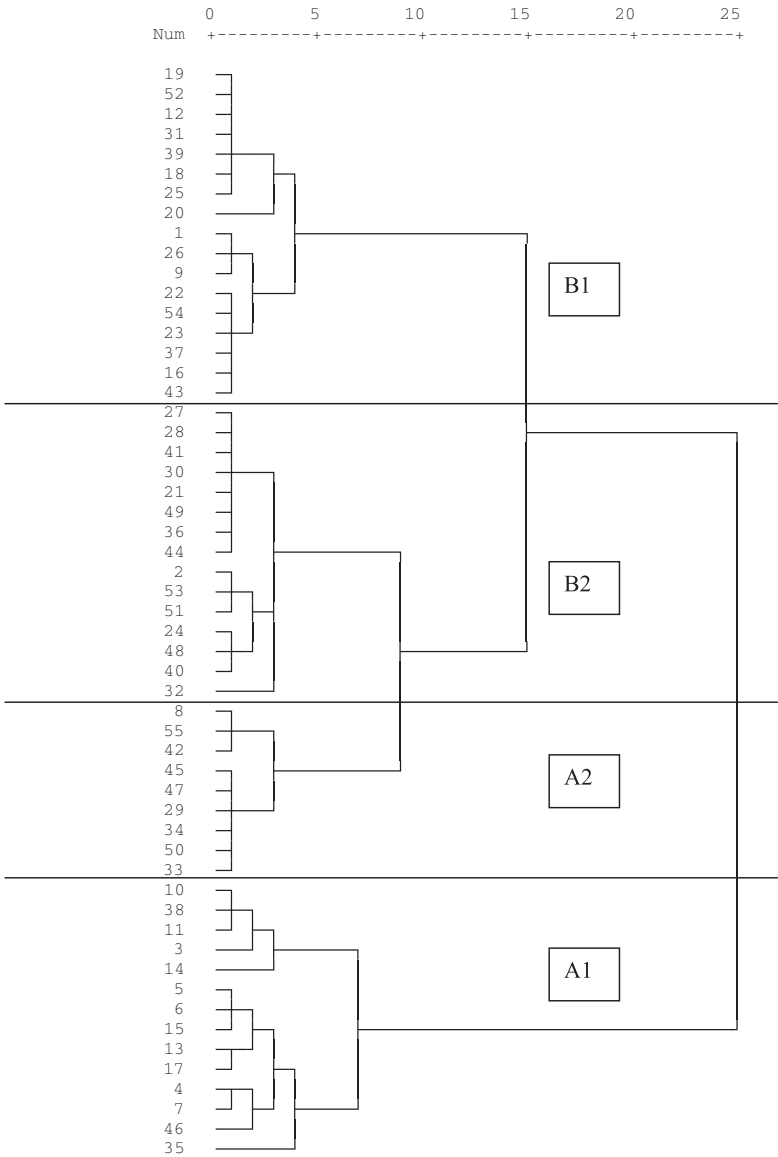


Figure A2.
Results of the cluster
analysis

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The role of the balanced scorecard in the formulation and control of strategic processes

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Abstract

Purpose – The aim of this paper is to confront the Balanced Scorecard (BSC) with Simons' levers of control model and to discuss its role in the various phases of the strategic process. The authors examine the role of the BSC as a tool of interactive and diagnostic control by making a distinction between its design phase and its phase of use.

Design/methodology/approach – An action research approach, based on two cases, was used to investigate the role of the balanced scorecard in strategic processes.

Findings – The results show that the BSC generates a process of collective elucidation favouring the forming of emergent strategies and a process of control of the change favouring the collective representations on the strategy. The BSC thus seems to be a relevant tool for interactive control during its implementation stage. On the other hand, the authors' observations also show the failure of the BSC as a system of diagnostic control and of interactive control during its using stage. Ultimately, it is shown that the model of Simons provides the BSC with a relevant theoretical framework to clarify the practice of strategic control.

Research limitations/implications – The study highlights the interest of field studies, and more particularly, processuals and longitudinal approaches, in management accounting research.

Practical implications – The study of two cases underlines the strategic contribution of the BSC by highlighting its role in building a strategy.

Originality/value – The field study allows us to observe how the design of a management control tool such as the BSC occurs during the strategy-forming phase.

Keywords France, Balanced scorecard, Strategic objectives, Strategic management control systems, Interactive control, Diagnostic control, Emergent strategy

Paper type Research paper

An important stream of research on management control systems addresses their role in strategic processes (Simons, 1995; Chapman, 2005). According to Simons (1995), interactive control systems play a significant role in the process of the emergence of strategies while diagnostic control systems intervene in the control of the implementation of the strategy. The balanced scorecard (BSC) constitutes a particularly interesting object of study insofar as it can be considered as much a lever of interactive control (Malina and Selto, 2001) as a tool for diagnostic control. As several authors have suggested (Nørreklit, 2000, 2003), one way to investigate its role as a strategic control system is to confront it with Simons' (1995) levers of control framework. This framework offers a new representation of the strategy-control relation by reversing the traditional sequence, introduced notably by Anthony (1965), consisting of subordinating control to the strategy. In effect, several authors (Simons, 1987, 1995; Marginson, 2002; Chenhall, 2005) suggest that control intervenes immediately during strategy formulation and not only during implementation.



The aim of this paper is to examine the role of the BSC in the process of forming, implementing and controlling strategy. In particular, to what extent does the BSC facilitate the development of strategies and the monitoring of the implementation of intended strategies? To address this problem, we chose a unique research initiative consisting of distinguishing the design phase of the BSC from its use. Our research therefore presents at one and the same time a study of theoretical, methodological and practical interest.

On a theoretical level, for a long time the strategy-control relation was concerned with the relations between control and strategy from a contingent perspective (Miles and Snow, 1978; Govindarajan and Gupta, 1985; Langfield-Smith, 1997). The originality of our paper is centred on the role of the BSC in the various phases of the strategic process. To accomplish this, the current study is positioned within the perspective of recent work on the concepts of “strategizing” and “controlling” (Chapman, 2005). We aim to contribute to a better understanding of the characteristics of diagnostic and interactive levers of control whilst focusing on the design and the use of the BSC.

On a methodological level, such an approach indicates the use of a processual approach by employing case studies and action research.

On a practical level, the BSC can be used by senior managers to formalize their strategy and to support its implementation. Our paper investigates how the BSC contributes to the strategy.

The results of our research contribute to Simons (1995) levers of controls model. They demonstrate how interactive use of the BSC can facilitate the emergence of a strategy. Their main contribution lies in the study of levers of control along the whole process, from design to the use of the BSC in relation with the forming and controlling of the strategy.

The first part of the paper presents the conceptual framework and a literature review. We then describe and justify our research methodology. Following this, we present the results of our research. Finally, we analyse the lessons learnt from the two case studies.

1. Literature review and conceptual framework

The theoretical framework mobilized in this study is Simons' (1995) levers of control model. Simons contrasts two levers of control: interactive control systems play a significant role in the emergence of strategies while the diagnostic control systems intervene in the control over strategy implementation. First, we explain how the two levers of control are involved in strategic processes (Section 1.1). Then, we review the extant literature on the BSC in relation to the levers of control and their role in strategic processes (Section 1.2).

1.1 The theoretical framework: Simons' levers of control framework and its role in strategic processes

Simons' (1995) framework explains how two levers of control are directly involved in the strategic processes, either at the implementation stage – diagnostic control – or at the formulation stage – interactive control. The first is used to focus attention on the implementation of intended strategies. “Diagnostic control systems are the formal information systems that managers use to monitor organizational outcomes and correct deviations from preset standards of performance” (Simons, 1995, p. 59). These feedback systems are the basis of traditional control systems. They are characterized

by three elements: fixing a priori goals and standards, measuring results and correction of deviations from standards (Simons, 1995, p. 59). The purpose of diagnostic control systems is to control critical variables of performance or key success factors. According to Simons (1995), the levers of diagnostic control permit the coordination and monitoring of the implementation of intended strategies.

In contrast “interactive control systems expand and guide the opportunity-seeking that may result in the emergence of strategies [...] [They] are formal information systems managers use to involve themselves regularly and personally in the decision activities of subordinates” (Simons, 1995, pp. 95, 157). These systems can “focus attention and force dialogue throughout the organization. They provide frameworks, or agendas, for debate, and motivate information gathering outside of routine channels” (Simons, 1995, p. 96). By focusing attention on strategic uncertainties and new opportunities, interactive control occurs as soon as the strategy is formed: “interactive control systems are used to guide the bottom-up emergence of strategy” (Simons, 1995, p. 98). Simons demonstrates how local actions can build momentum and, through learning, come together as new strategies. He thus refers to emergent strategies such as those described by Mintzberg *et al.* (1998), where the main concern of interactive control is to steer and formulate these strategies. Simons (1995) states that it is the affair of top management to stimulate interactive dialogue at the heart of the firm: “through the dialogue, debate, and learning that surrounds the interactive process, new strategies emerge” (Simons, 1995, p. 102). Interactive control systems relate to “strategy as patterns of action” (Simons, 1995, p. 155). In much of his work Simons (1987, 1995) and other authors (Abernethy and Brownell, 1999; Henri, 2006; Widener, 2007) outline the distinctive features of diagnostic or interactive control systems. These are summarized in Table I.

The next section examines the BSC in terms of the levers of control framework.

1.2 The BSC and the levers of control: a review of the existing literature

Whereas Simons (1995) presents the BSC as an illustrative example of diagnostic control, Kaplan and Norton (1996), from their early publications, paved the way for an interactive approach to the BSC by suggesting that it might be taken as a device for promoting emergent strategies and organizational learning. This is discussed explicitly in their 2001 work where they assert that the BSC can be used as an interactive lever of control, stating that “certain applications of the BSC have failed because organizations only used the dashboard for diagnostics and did not succeed in drawing the benefits from learning and innovation of the interactive system” (Kaplan and Norton, 2001a). In a publication on the conceptual fundamentals of the BSC, Kaplan (2009) recognizes the fact that he and Norton originally envisaged the BSC as a diagnostic monitoring system. However, based on the experience of several company directors who had developed a BSC, they then became convinced that “the BSC could operate in a far more powerful manner than its use as a management reporting and performance monitoring system” (Kaplan, 2009, p. 1263). They demonstrated how the BSC could be used as a lever for interactive control (Kaplan, 2009; Kaplan and Norton, 2001b).

Despite this, Kaplan and Norton provide relatively few concrete examples of the interactive use of the BSC. Also, the first impression that remains on reading their work is of a model of diagnostic control that allows for the deployment of intended strategies. This impression is reinforced by the recurring use of the concept of strategic alignment which, moreover, Kaplan and Norton (2006) use as the title for one of their

	Diagnostic control systems characteristics	Interactive control systems characteristics	BSC in strategic processes
Nature of system	Feedback systems used to monitor organizational outcomes and correct deviations from preset standards of performance	Control systems that managers use to regularly and personally involve themselves in the decision activities of subordinates	215
Purpose	Provide motivation, resources and information to ensure important organizational strategies and goal will be achieved	Focus organizational attention on strategic uncertainties and thereby provoke the emergence of new initiative and strategies	
Key design variables	Critical performance variables	Strategic uncertainties	
Role of staff specialists in preparing and interpreting information	Pivotal	Limited	
Involvement of operating managers	The process involves operating managers infrequently and on an exception basis	The process requires frequent and regular attention from operating managers at all levels of the organization	
Data and information uses	Data are transmitted through formal reporting procedures	Data are interpreted and discussed in face-to-face meetings of superiors, subordinates and peers. Information generated by the process represents an important agenda to be addressed by the highest levels of management	Table I. Compared characteristics of diagnostic and interactive control systems
Nature of the process	The process accomplishes predetermined outcomes	The process relies on the continual challenge and debate of underlying data, assumptions and action plans	

later works. Drawing on Chandler’s (1962) work, according to which structure follows strategy, the BSC is presented then as “a system for aligning strategy and structure” (Kaplan and Norton, 2006, p. 54). The BSC can thus be viewed as a device for aligning an intended strategy.

Nevertheless, it seems excessive to accuse Kaplan and Norton of limiting their BSC to a diagnostic approach. Elsewhere in their writings, Kaplan and Norton also highlight the potential of the BSC as a lever for interactive control. For example, they indicate that many companies use the BSC during meetings where the directors are seeking new strategic opportunities. Ideas and learning thus emerge continually from within the organization (Kaplan and Norton, 2001b). Kaplan and Norton also make explicit reference to the interactive control systems described by Simons (1995). Viewed as such, the BSC allows therefore for the identification and support of emergent strategies (Kaplan and Norton, 2001a).

Some researchers regard the BSC as a rigid form that ignores external influences on strategy, particularly the changing nature of the environment in the context of an innovative economy. Maisel (1992), for example, suggests that the BSC may inhibit strategic thinking. Other authors (Voelpel *et al.*, 2006; Nørreklit, 2000), believe that the BSC results in a static approach: “the balanced scorecard risks being too rigid because it measures what is required to set a strategy without asking what may block or shock the strategy” (Nørreklit, 2000). That is, the BSC measures what is required to conceive a strategy, without questioning what might impact the strategy. Furthermore, she

argues that, even if Kaplan and Norton recommend that the BSC constitutes the basis for double-loop learning, it does not seem to be consistent with the highly mechanistic method, hierarchically “top-down” which they describe in their model. Referring to the too rigid and mechanistic character of the BSC, Nørreklit (2000) thus advocates an interactive approach based on the model of Simons (1995): “the solution recommended in Simons (1995, p. 92) is that the top management, on the one hand, encourages employees to undertake a continuous search process to uncover external shocks and opportunities and, on the other, creates a network through which information is mediated” (Nørreklit, 2000, p. 78). Following Nørreklit (2000), it is in its use as a lever of interactive control that the real potential of the BSC is revealed.

We argue in the above discussion that the BSC can equally be viewed as both a system of diagnostic control and as an interactive system. The aim of our paper is to show that the BSC, through interactive processes, is not used only to implement the strategy but also to formulate it.

2. A qualitative methodology founded on two case studies

In a first phase, the researchers participated in the design of a BSC within two organizations. By coordinating the project group meetings, they both interacted with the actors and encouraged interaction among the participants. In the second phase, they were observers of the use of the BSC.

The research is part of a qualitative methodology based on action research (Section 2.1). It is based on two case studies whose characteristics are presented in the following sections (Section 2.2).

2.1 A qualitative methodology founded on action research

The study aims to explain the design and implementation processes of the BSC within the framework of an action research project carried out in two industrial companies – Amidon and Mecatronic – located in the South of France. Specifically, we aim to describe, understand and explain the dynamic interactions between the design, the implementation and the use of devices of management control on the one hand and the construction and implementation of the strategy on the other. Through this approach, we aim to contribute to the current theoretical debate on the relations between strategic processes and management control.

The developed methodology thus shows several characteristics:

- It adopts a qualitative field approach in which the researchers interact with an organization and its actors in order to contribute to the construction of a theory. As Ahrens and Chapman (2006) indicate, “doing qualitative field studies is not simply empirical but a profoundly theoretical activity. With qualitative methodology goes an acknowledgment that the field is itself not just part of the empirical world but is shaped by the theoretical interests of the researcher”. The links between theory and empirical data proceed consequently from reflexive loops. Thus, if the conceptual framework of the levers of control of Simons (1995) constitutes the theoretical lens through which we examine our questions of research, in turn the empirical observations from the field continually feed our questioning.
- The approach is processual. It consists of describing, analysing and explaining a sequence of individual or collective actions, while being based on the assumption according to which “social reality” does not constitute a stable condition, but

stems from a dynamic process (Pettigrew, 1997). The qualitative methodology and the longitudinal case study are particularly coherent in such a perspective (Hinings, 1997; Pettigrew, 1997).

- Social reality is consequently considered as “emergent, subjectively created, and objectified through human interaction” (Chua, 1986). This paper uses a methodology in which the researchers interact with their terrain, within the framework of an action research. This approach is still very rare in management accounting research (Kasanen *et al.*, 1993), but seems to be evolving with further developments of research based on action research methodology. Kaplan (1998) pleads in favour of an approach called “innovation action research”, consisting of developing new theories and practices through on-the-ground experimentation in innovating practices. Kaplan refers particularly to his work with Norton on the BSC. Our study is aimed, through action research, at testing an innovative prospect, little explored by Kaplan and Norton: the role of the BSC in the process of forming, implementing and controlling strategy.

This methodology is similar to the constructive research approach (CRA) proposed by Kasanen *et al.* (1993). According to Kasanen *et al.* (1993), the CRA lies on managerial constructions: “managerial problem solving through the construction of models, diagrams, plans, organizations, etc.” (Kasanen *et al.*, 1993, p. 245). The CRA proceeds from a sequential process (Kasanen *et al.*, 1993; Lukka, 2000). In Table II, we adopt the seven step model suggested by Lukka (2000) in order to describe the different protocols of our research. Nevertheless, while we acknowledge the different steps proposed by Lukka (2000), our research differs from the CRA and relates more to the innovation action research as developed by Kaplan (1998). In innovation action research “scholars develop and refine a theory of a newly discovered management practice that is believed to be broadly applicable to a wide variety of organizations” (Labro and Tuomela, 2003). True academic innovation work is lacking in that there is no production of new constructs (Lukka, 2000; Labro and Tuomela, 2003). This is the case in the present study: we want to develop and refine our understanding of a pre-existing management accounting tool – the BSC – in order to study its role in strategic processes depending on whether it is designed and used as an interactive lever of control or, conversely, as a diagnostic control device.

Several reasons motivated the choice of two case studies:

- The two organizations are similar in several respects. They are comparable in size and their management styles are similar. In both cases, their directors have developed a participatory management style, seeking to involve a wider group of collaborators in the management of the company. The directors of both companies are driven by an entrepreneurial vision, but are still seeking a strategic thinking and a collective project. These two expanding entrepreneurial companies appear to have built their strategies in an emergent way, often in response to opportunities or in reaction to threats. All the conditions allowing us to observe how the design of a BSC can play a role in building a strategy seemed thus to be satisfied.
- Top management in both firms agreed to implement a BSC with the active participation of researchers in an action research context. In both cases, this corresponded to the need for a new common project that combines all the actors around it. However, once the BSC in place, the two companies did not wish to

Table II.
The research protocols at
Amidon and Mecatronic

Steps of constructive research	Amidon	Mecatronic
Step 1 – Finding a practically relevant problem which also has research potential	Top management wants to stimulate the commitment of their subordinates in a collective project	Top management identifies a lack of strategic management control system and wants to a new system which facilitates strategic thinking and conduct of change
Step 2 – Examining the potential for long-term research cooperation with the target organization	The researchers collaborate for a long time with the managers of Amidon in the context of training programs for students in management accounting. The collaboration takes form of an informal cooperation based on trust. No confidentiality agreement is signed	One of the executives (business manager) was a student of the researchers in a MBA program. The collaboration takes form of an informal cooperation based on trust. No confidentiality agreement is signed
Step 3 – Obtaining a general and comprehensive understanding of the topic	The researchers conduct a literature review on the BSC, Simons' (1995) levers of control model, the strategic processes, and the role of management control systems in strategic processes. Empirical data are collected through interviews and recording, during steering committees meetings	
Step 4 – Innovating and constructing theoretically grounded solution areas	The BSC is developed through close cooperation with top management and the main actors of the companies through steering committees	
Step 5 – Implementing the solution and testing whether it works in practice	At the end of the design phase, participants declared themselves very satisfied with the experience. The directors acknowledge that the BSC gave them the opportunity to rethink the strategy and to involve their subordinates in a collective project. But the BSC was abandoned before embarking on the implementation phase	
Step 6 – Examining the scope of the solution's applicability	The exercise has the potential to be applied to innovative and entrepreneurial firms similar to Amidon and Mecatronic	
Step 7 – Showing the theoretical connections and the research contribution of the solution	The results bring a theoretical contribution to the study of the BSC as an interactive control device. They indicate that, for entrepreneurial and innovative firms, it seems more relevant to use the BSC in an interactive manner. But, as the BSC was abandoned before its implementation phase, it is important to note that the design of the BSC is a very important stage because it facilitates the strategic thinking and the formulation of new strategies	

continue the action research experience: at Amidon, the top management has changed, the new team did not want to prolong the experience of the BSC, especially since it was not established by the group. According to the CFO: “the experience of the BSC was not pursued because the new director of the establishment didn’t agree with it”; at Mecatronic, according to its general manager (GM), “the company undergoing a major crisis, it was necessary to take account of other priorities”. In the two cases, if the experience of action research was stopped after the phase of implementation of the BSC, the companies have nevertheless accepted that researchers continue their research work with a position of observer.

- In both cases, while the experience of using the BSC was not pursued beyond the design phase, it resulted in various developments in the companies afterwards. Although both of them brought a halt to the BSC experience once the design phase had been completed, the outcome that resulted and the influence it generated on the management reveal different processes that warrant comparison and greater investigation.

Both BSC experiments ended in “semi-success”: the design phase of the BSC facilitated a consensus regarding the collective construction of the strategy and thus led to the formulation of a new strategy. The collective work around the design of the BSC generated considerable enthusiasm among the actors, who declared themselves satisfied with the contributions and effects induced by the experience. But a year later, the researchers noted that it did not continue to the stage of using the BSC as a monitoring or reporting system. The fact that this conclusion was the same in both cases, strongly challenges the actors and calls for further investigation.

2.2 Data analysis

The study of these two cases, their similarities and their differences, is thus aimed at improving our understanding of the processes at work during the different phases of the life cycle of a BSC in relation to our research questions. The case studies allow us to study the role of BSC in the process of forming, implementing and controlling the respective strategies of the two firms. In particular, we investigate the role of the BSC in guiding the development of strategies and in controlling the implementation of intended strategies. Simons' (1995) levers of control framework leads us to mobilize several concepts: the concepts of intended and emergent strategies (Mintzberg and Waters, 1985; Mintzberg, 1994; Mintzberg *et al.*, 1998) together with the concepts of diagnostic and interactive control (Simons, 1995). The variables of interest were operationalized as follows.

2.2.1 Diagnostic and interactive control systems. Table III aims to identify the modalities of a BSC depending on whether it is used as a diagnostic or as an interactive lever of control. To achieve this, we used the typology presented in Table I which distinguishes the respective characteristics of diagnostic and interactive management control systems by means of a literature review. For example, according to Simons (1987, 1995), diagnostic controls are feedback systems used to monitor organizational outcomes and correct deviations from preset standards of performance. For Henri (2006), the diagnostic use of management represents the traditional feedback role as management control systems are used on an exception basis to monitor and reward the achievement of pre-established goals. Following a traditional mechanistic notion of control, a diagnostic use provides motivation and direction to achieve goals by focusing on and correcting deviations from preset standards of performance. This is consistent with observations made by Abernethy and Brownell (1999) in their study on styles of budget use: top management can use budget reports as a diagnostic tool to assess if outcomes are in accordance with intended plans. So, in a diagnostic approach, one could expect that the BSC is conceived as a dashboard allowing for regular comparison between results and predetermined standards or targets.

Conversely, used as an interactive lever of control, the BSC could be conceived by managers as an opportunity to interact with their subordinates and an opportunity for continual questioning of strategy and hypotheses (Simons, 1987, 1995). This is consistent with research which show that interactive systems require significant

Table III.
Differences in the uses of
the BSC as a diagnostic
control device and as an
interactive control system

	BSC characteristics as a diagnostic control system	BSC characteristics as an interactive control system
Nature of system	The BSC is conceived as a dashboard allowing for regular comparison of results at predetermined standards	The BSC is conceived by managers as an opportunity to interact with their subordinates
Purpose	The BSC allows for strategy alignment and the setting up of intended strategies	The BSC focuses the attention of the organization on changes and facilitate the emergence of initiatives and strategies
Key design variables	The indicators and themes of the BSC strategy map interpret the key factors to success of an a priori defined strategy	The indicators and themes of the BSC strategy map interpret a viewpoint and an ensemble of strategic hypotheses
Role of staff specialists in preparing and interpreting information	The BSC is the responsibility of accounting departments	The BSC is the responsibility of senior management and all managers are involved
Involvement of operating managers	The BSC is conceived top-down and imposes itself on operational managers	Through the BSC, top management implicates the operational managers in relations of the bottom-up and transversal type
Data and information uses	Data from the BSC are transmitted through formal reporting procedures	Data from the BSC are interpreted at meetings of superiors, subordinates and peers at which the senior management stimulate dialogue and debate
Nature of the process	The BSC is focused on a comparison between results and predefined objectives and targets	The BSC is the occasion for continual questioning of strategies and hypotheses

top management involvement (Widener, 2007). According to Henri (2006), interactive use focuses attention and forces dialogue throughout the organization by reflecting signals sent by top managers. It stimulates the development of new ideas and initiatives and guides the bottom-up emergence of strategies by focusing on strategic uncertainties. So, we suggest that, in an interactive use, the BSC focuses the attention of the organization on changes and facilitates the emergence of initiatives and strategies, while in a diagnostic approach, the BSC allows for strategy alignment and the setting up of intended strategies. From another point of view, diagnostic levers of control transmits data through formal reporting procedures while, in interactive systems, data are interpreted and discussed in face-to-face meetings of superiors, subordinates and peers (Simons, 1987, 1995). In an interactive approach, data from the BSC are interpreted during meetings of superiors, subordinates and peers at which the senior management stimulate dialogue and debate.

We analysed the Amidon and Mecatronic cases through the grid provided in Table III. But, as we wanted to go into greater depth as regards the relationship between strategic processes and management control, through studying the processes at work during the different phases of the life cycle of the BSC, we used Tables IV and V to introduce a distinction between the design phase of the BSC and its phase of use.

	Design of the BSC at Amidon	Design of the BSC at Mecatronic	Differences between Amidon and Mecatronic
Nature of system	The construction of the BSC allowed the directors and their subordinates to reflect together on the strategy	The design of the BSC provided a privileged moment of collective strategic thinking	No differences
Purpose	During the design of the BSC, the actors became aware of the threats and opportunities confronting them which allowed for the emergence of a strategy	During the design of the BSC, debates were held on strategic changes	No differences
Key design variables	The design of the strategy map and indicators resulted in assumptions reflecting a shared representation of performance by the actors	The design of the strategy map and the choice of indicators served to design a shared strategic model	No differences
Role of staff specialists in preparing and interpreting information	The design of the BSC was a matter for all members of the steering committee who involved operational actors	The BSC was the responsibility of the steering committee involving operational managers in a steering group	It was only at Amidon that all personnel were involved in the design of the BSC. At Mecatronic only executives and product line managers were involved
Involvement of operating managers	The BSC associated functional directors and operational actors of the processes	All the functional directors (HR, finance, production) as well as five product line managers and the quality control manager participated in the steering group	
Data and information uses	The BSC was not integrated into the reporting system and did not implement predefined targets. It was only used by the financial director as a simulation tool in the annual preparation of the budget	The strategy map alone was subject to annual debate	At Amidon, the BSC is still used by the chief financial officer while at Mecatronic, only the strategy map is the subject of an annual debate between members of the executive committee
Nature of the process		Only the strategy map was selected as an aid to an annual questioning of the strategy and its hypotheses	At Amidon, the BSC is used to establish the budget while at Mecatronic the strategy map is used to rethink strategy

Table IV.
Design processes of the BSC at Amidon and Mecatronic

Table V.
Use of the BSC at Amidon
and Mecatronic

	Use of the BSC at Amidon	Use of the BSC at Mecatronic	Differences between Amidon and Mecatronic
Nature of system	The "BSC" project was not pursued to the reporting and steering stage	The "BSC" project was not pursued to the reporting and steering stage	No differences
Purpose	The BSC, once designed, was not used as a control tool for the implementation of the strategy or the questioning of the strategy	Only the strategy map was used on the occasion of an annual meeting centred around strategic changes	At Amidon, the BSC is no longer used to reflect on strategy, but at Mecatronic the strategic map is still a means of moving the strategy forward
Key design variables	Once a year, the administrative and financial director use the BSC as a tool for helping the preparation of the budget	Once a year the strategy map and the strategy it represented were subject to debate	At Amidon, the BSC is a tool for budgetary discussion while at Mecatronic the strategy map gives rise to discussion
Role of staff specialists in preparing and interpreting information	The BSC was used only once a year by the administrative and financial director to facilitate his work in establishing the budget	It was the same steering group that participated in the annual debate on strategy	At Amidon, the BSC is now only used by the Chief Financial Officer while at Mecatronic it remains a tool for dialogue among the management
Involvement of operating managers		All the functional directors (HR, finance, production) as well as five product line managers and the quality control manager participated in the steering group	
Data and information uses	The BSC was not integrated into the reporting system and did not implement predefined targets. It was only used by the Financial Director as a simulation tool in the annual preparation of the budget	These are not data from the BSC, as indicators of performance are analysed: the strategy map alone was subject to annual debate	If at Amidon, the BSC is only used by the Chief Financial Officer to help prepare his budget, at Mecatronic it is only the strategy map that gives rise to debates on the strategy
Nature of the process		Only the strategy map was selected as an aid to an annual questioning of the strategy and its hypotheses	

2.2.2 Intended and emergent strategies. We relied on their distinctive characteristics as defined in the strategy literature (Mintzberg and Waters, 1985; Mintzberg, 1994; Mintzberg *et al.*, 1998): “the intended strategy focuses on control – ensures that the intentions are fulfilled in the action – while the emergent strategy emphasizes learning – to understand, through the action, what was originally intended” (Mintzberg *et al.*, 1998, p. 198). On the one hand, the strategy is best understood through a rational process, formalized and deterministic, in which the objective is to plan, implement policies and deploy resources coherently, consistent with the guidelines policy decided at the top. On the other hand, “the concept of emergent strategy opens the door to strategic learning, because it recognizes the right of the company to experiment. An isolated action is conducted, benefits will be observed, and the process will continue until the company forms a model that will become its strategy” (Mintzberg *et al.*, 1998). An emergent strategy is thus formed when a set of isolated decisions, sometimes uncoordinated, taken in response to opportunities or threats, gather in a trajectory that converges towards a coherent model. The latter then emerges as the company’s strategy: “actions have been taken, one at a time, which gradually converged over time into a kind of coherence or form” (Mintzberg, 1994, pp. 40-1). According to Mintzberg and Waters (1985), strategies are never fully intended nor even purely emergent. These two concepts are presented more as the two extremes of a continuum.

It was then necessary to study to what extent the strategy, as it was defined in the design of the BSC, was the product of an intentioned and deliberate process or whether it came from an emergent process. In order to identify emergent strategies, we wanted to know if several micro decisions, taken in an isolated and uncoordinated manner, during different stages of the company life, gather in a consistent trajectory, which imposes itself as the final strategy of the firm. More particularly, during the steering committees (SC) meetings, we observed how the participants, collectively, gave sense and consistency to the past actions and have formulated a new strategy. This strategy was not intended, in the sense that it was not defined *a priori*, but it emerged from a process of collective deliberation during debates at the different stages of the experience.

2.3 Research site and data collection

It is now important to introduce the two organizations and the manner in which the research was conducted in each of them. For reasons of confidentiality, the two cases have been named Amidon and Mecatronic. Table VI summarizes the characteristics of the two companies.

Characteristics	Amidon	Mecatronic
Business Markets	Cardboard packaging Packaging of liquid, food, fruits and vegetables, traditional industry, laboratory and cosmetics	Precision mechanics Drilling sector and measuring instruments for the gas and oil industry
Number of employees	200 employees	130 employees
Turnover	40,000,000€	24,000,000€
Legal form	Profit centre owned by an international group	Independent small- and medium-sized firm

Table VI.
Main characteristics of Amidon and Mecatronic

Amidon is an industrial company belonging to a world leader group of corrugated cardboard packing. It is a cardboard producing factory which numbers approximately 200 people and had a production of 40,000 tonnes of cardboard and a turnover of 40,000,000 € in 2005. The method of investigation took the form of the participation of the researchers in the development of the BSC. Once the BSC was set up, the perceptions of the actors were collected and a follow-up to its use was carried out.

Created in 1977, Mecatronic manufactures parts and mechanical sets of the highest precision, mainly used in the drilling sector and measuring instruments for the gas and oil industry. Located in the South of France, Mecatronic has a turnover valued at 24 million euros in 2007 and today employs almost 130 people. The turnover tripled between 2004 and 2007 and the company shows excellent results in terms of profit and financial viability.

In the two companies, the choice of protocols of investigation used can be described according to the three phases of implementation of the project: the formalization of the strategy; the conception of the BSC; the follow-up of the use of the BSC.

2.3.1 Amidon. At Amidon, the BSC could be viable only if accepted and used by all. Its design mobilized not only the directors, but also all the operational and functional heads. Meetings were systematically organized around the design of the BSC.

2.3.1.1 First stage: formalizing the strategy. Several meetings were initially organized in order to clarify the strategy of the establishment. They mobilized the principal heads of the production unit who were the director of the establishment, the business manager (BM), the director of production (DP), the chief financial officer (CFO) and the quality director. They thus made it possible collectively to define the regional strategic project of the company. Then, after the constitution of three work groups, meetings took place in order to search for the key success factors, i.e. the major axes of change which would be essential in reaching the strategic vision of the organization. These multi-field groups comprised the regional director of the establishment, the principal top executives and certain people in charge of processing. During meetings, an analysis of the forces and weaknesses type as well as the threats and opportunities was carried out and stated for each axis expressed by the BSC.

2.3.1.2 Second stage: managers' participation in BSC processes. So that the project might be viable, that is, accepted and used by all managers meetings were organized by process in order to determine their objectives, their key success factors, their variables of action and their indicators of performance. The definition of the processes was made with the cartography established within the framework of certification as a starting point. Each process meeting called for the participation of the members of the process concerned but also of the personnel of the other processes which depended on or interacted with it. Their organization began by requiring of each participant to describe what, according to him, the three main tasks of the studied process were. The individual answers were then collected and each participant had to explain his proposals. A comparison of the individual responses was then debated in order to reach a consensus on the most relevant indicators. So that the expressed choices might be as clear as possible, a representation in the form of a "cause-effect" diagram was then introduced by managers and adopted for each task contained in the process. Finally, the work of each process group led to the establishment of a process dashboard. Meetings were then organized with the team of directors in order to synthesize the process dashboards for a first rough draft of the BSC for Amidon. It represented the culmination of the development of the strategy map that made apparent several chains of causality. The Amidon BSC was not therefore confounded

by a “collection” of indicators structured around predefined axes. It constituted, along with the existing links between the indicators and the explanation of cause and effect relations, a description of the strategy that might promote its implementation.

2.3.1.3 Third stage: follow-up of the uses of the BSC. During this phase, semi-directive interviews were held with the members of the SC in order to understand the role played of the BSC at Amidon (the Appendix presents the interview guide). The objective of these talks was double: on the one hand, to determine the relevance and the utility of the BSC and, on the other hand to collect information concerning the potential user expectations of the BSC and, if the opportunity arose, to make improvements.

2.3.2 *Mecatronic*. Access to the primary sources was facilitated by direct and regular contact with the GM, commercial and purchasing manager (BM) and the members of a SC in the context of an action research project with the same researchers, undertaken since October 2006. A SC was created and the start of the project. This SC included members of the executive committee (GM, BM, CFO, director of human resources (DHR), DP). It was expanded to include quality control manager (QCM) and five product line managers (PLM). These latter managers are middle managers who supervise work teams engaged in the manufacture of a product line. These contacts took form through work meetings and various semi-directing talks with the executives concerned.

Several working sessions with the GM and BM were first focused on an overview of the company, its history, its organization, its strategic environment. During these preliminary meetings, a research protocol has been defined and the composition of the SC has been decided.

2.3.2.1 First stage: formalizing the strategy. A first meeting with the SC took place during an afternoon: the BSC, the objectives and the research protocols have been exposed by the researchers and the GM. A second meeting with the SC took a full day. First, the GM has submitted his vision and his strategic analysis to the participants and invited them to an open discussion. A debate on the vision, positioning, key success factors took place then. The role of the GM and BM was to stimulate the dialogue between all the members of the committee. The researchers led the meeting by throwing again the debate in order to clarify and deepen the ideas, whenever they thought that this was necessary. At the end of the meeting, the GM presented a summary of discussions and he formulated the new strategic directions of the company. The researchers then defined the objectives and methodology of the strategy map design.

2.3.2.2 Second stage: managers' participation in BSC processes. In order to build the BSC, the role of the researchers consisted of conducting several work sessions with the SC. Other meetings were also organized in the absence of the researchers between the various actors concerned. The researchers initially explained the objectives and methods of the design of a strategy map. The actors then had a one month deadline to build a strategy map, without the researchers being present. During this phase the researchers did not wish to impose their vision to the SC. In particular, they wanted the actors to appropriate the logic of the strategy map. A plenary meeting of the SC, in the presence of researchers, then took place. Thus, at the end of a debate between all participants, several adjustments were made to the initial strategy map. A final map was then approved. The same protocol was followed for the definition of indicators.

2.3.2.3 Third stage: follow-up of the uses of the BSC. One month after the installation of the BSC (2007), individual interviews were held with all the participants of the SC in

order to collect their impression about the experience. One interview has been held once a year with the GM and the BM in order to study the effectiveness of the BSC and to understand its role in the strategic process.

3. Results and analysis

In order to understand the role of the BSC in strategic processes we distinguish the design phase of the BSC and the use stage of the BSC.

3.1 *The design phase of the BSC: an interactive approach*

Table IV summarizes the different characteristics of the BSC design processes in both their similarities and differences.

3.1.1 Converging design styles. As Kaplan and Norton (2001a) state, if the BSC is envisaged as a lever of interactive control, it allows “the identification and support of emergent strategies”. Following Kaplan and Norton (2001a), the interactions and discussions promoted during the design of the BSC make us aware of the fact that a new strategy is taking shape. The two case studies illustrate this idea insofar as the design of the BSC enabled the actors to understand the coherence in the various actions taken over the previous years, which in turn encouraged an emergent strategy to be identified. In effect, a similar process seems to have occurred in the two companies we dealt with.

At Amidon, for a long time the development of the site was based mainly on the growth of one client – “les sources AQUA” – and on the potential of the production of fruit and vegetables. Over the years, the production site sought mainly to optimize its production equipment in order to control at one and the same time productivity and quality. However, since the 2000s, the environment has become increasingly competitive both as regards prices and the differentiation of the offer. Amidon has thus accentuated the differentiation of its offer. Consequently, step by step, through its successive actions and learning, a new strategy emerges, clearly focused on the quality of the product and service.

Mecatronic, since in creation in the 2000s, has been a subcontracting mechanical company, which operated, to a total value of 90 per cent of its turnover, for only one client, a factory belonging to a multinational group in the sector of equipment for the gas and oil industry. Over the years, through contact with its “historical client”, the company learned how to conceive and respect a schedule of conditions of contract and to apply rigorous methods of production management. So several actions were decided upon over time, which allowed the company to develop learning and gradually, a strategy took shape: starting from a core of competence in the mecatronics field, thanks to its capacity to understand the problems and the needs of its clients, the company showed empathy and reactivity through offering them custom-tailored comprehensive solutions of products and services with strong added value.

In these two companies, it is during the strategic analysis which was established at the time of the design of their BSC and strategy map, that the leaders gave direction to the actions and learning acquired to formulate a strategy. In fact, this strategy seemed to emerge in spite of themselves, as if it were independent of their cognition.

The strategies which thus emerged resulted in the formulation of a strategic vision and the identification of key success factors (see Table VII).

3.1.2 Differences in the processes of design. Both cases revealed a process of collective building of the strategy with the BSC in which degrees of actor participation were of more or less varying importance. At Amidon, the site director declared that

	Amidon	Mecatronic
Strategic vision	"To be the best on the market in order to ensure the permanence of the company"	"To position ourselves as a network integrator of note in the mechanics and electronics domain"
Key factors for success	"To be present on the whole range of the needs of its clients in terms of cardboard packaging" "To be the sole provider of cardboard packaging solutions for its client through a full understanding of its project"	"To exploit the network ability of the company in order to develop subcontracting partnerships and 'competition' with partner competitors" "To transfer the know-how acquired from present clients to other sectors of activity and notably through linking precision mechanics and electronics in order to become a leading provider in mecatronics"

Table VII.
The emerging strategies of Amidon and Mecatronic

"the BSC project could be viable only if accepted and used by all". He therefore committed himself so that the design of the BSC would mobilize, not only the directors but also all the operational and functional heads. Meetings were systematically organized around the design of the BSC which allowed the different service heads to acquire an overall consistency in the various actions of previous years. Initially, several smaller meetings of the SC led to a definition of the strategic vision. Later, meetings organized by workgroups and also involving the management team and some process managers identified the key success factors for access to the strategic vision. This identification was completed by the designing of the strategy map. The BSC project then based itself on the mapping of processes established under certification. Each process resulted in a collective definition of tasks, conditions for success, action variables, indicators and finally a process dashboard. When designing process dashboards, managers learned to work together, something they were not used to doing before. Thus, the person in charge of the process maintenance said, "because my focus group was made up not only of those involved in maintenance but also those responsible for customer and supplier processes, I learned to take into account not only my constraints but also those of other actors involved in the performance of my process." A synthesis of the process dashboards was then established which constituted a first BSC draft for Amidon. It represented the culmination of the development of the strategic map that made apparent several chains of causality. The Amidon BSC was not therefore confounded by a "collection" of indicators structured around predefined axes. It constituted, along with the existing links between the indicators and the explanation of cause and effect relations, a description of the strategy that might promote its implementation.

At Mecatronic the design of the BSC also resulted from a collective process, but it was limited to members of the executive committee, expanded to PLM, into a SC. The SC organized several workshops for the different stages of the design of the BSC: strategy analysis, goals, vision, assignment, design of the strategy map and the definition of performance indicators. A collective workgroup, led by the researchers, sought to encourage dialogue and debate within the company, and thus allowed actors from different hierarchical levels, functional and transversal, to interact. Then, the

actors collectively constructed a strategy map, and thereby provided themselves with a common vision and a shared model of performance, reflected in turn by the definition of indicators. According to the GM: "the strategy map has been shared with all the managers [...] It helps me to answer to the questions of other managers because it has been conceived with them".

The BSC then revealed an unexpected aspect in that it indicated pedagogical benefits by allowing the actors, previously uninvolved in the strategy of their company and unfamiliar with managerial language and reasoning, to participate in the discussion and to appropriate the strategy and the BSC. This was especially true of the product managers, hitherto confined to an essentially technical and operational role.

However, the design processes were also different in the two companies at the time of the redesigning of the BSC. In effect, at Amidon, this redesign no longer concerned the CFO who declared "I use the BSC update as a tool for budgetary discussion." At Mecatronic, the BSC was not subject to redesign. Only the strategic map was rediscussed between members of the SC in order to redesign the strategy if necessary.

3.2 Diagnostic and interactive use of the BSC

In both companies, once the BSC had been designed, we might have expected the process to continue by the regular use of the BSC as a steering dashboard or a reporting instrument. Two scenarios would then be present: either a diagnostic use of the BSC during which, the strategy having been formalized at an earlier phase, it would compare the results of the scorecards to strategic objectives and targets; or interactive use in which the top management would hold one or more meetings concerning the BSC, involving operational managers, to encourage dialogue and debate on the strategy, which might lead to a questioning and reformulation of this strategy.

Yet, against all odds, after a year, in both companies, the researchers found that the BSC was not being used as a dashboard – neither in a diagnostic approach, nor in an interactive approach. One of the possible reasons is that once the BSC conceived, researchers became observers because both organizations did not want to pursue the BSC project: at Amidon, the top management changed and the new team did not want to use the BSC; at Mecatronic, the crisis revealed other priorities and then the BSC was abandoned. Nevertheless, what remained of the BSC once the design phase had been completed? The cases of Amidon and Mecatronic provide two unusual situations.

At Amidon, the design process of the BSC generated a strong involvement of all the actors both directors and operational, so we might expect that Amidon would use the BSC as a management tool for its strategy both to control its implementation or to readjust it. But analysis of the data showed that the BSC had been for the greater part been abandoned. First, the various executives interviewed said they did not use the BSC as a tool for controlling their activity. The major reason stemmed from the contents of the BSC. For example, the standard character imposed by the BSC did not suit the director of the establishment for the control of his activity. He stated: "I need only three daily key figures: the payroll, the cost of transportation and material yield". The other directors complained about the overly synthetic character of certain BSC measurements. For example, the sales manager said that "the calculation of an aggregate satisfaction index does not help me to make decisions and implement plans

of action". He added: "when I need information, I will look directly in detail at the level of operational dashboards".

Then, the directors said that they did not use the BSC as a medium for discussion and an aid to decision making at monthly meetings of the SC. According to the CFO: "one of the limits of the BSC is its formalism. If the formalism of the BSC is too penalizing, it leads to its abandonment". The BSC was criticized for being either too retrospective or too prospective in nature. Indeed, information from the BSC, mainly outcome indicators, were already known by the different members of the SC before it met and they could not afford to wait for information to be available in the BSC to act. Therefore, because the BSC had progressively become a reporting and not a forward-looking tool, it was not used to control the strategy or to consider its questioning.

However, the BSC has not completely disappeared. The administrative and financial director has reported using the BSC as a tool for preparing the annual budget of Amidon. He has also retained the multidimensional nature of the BSC which he uses as a reference during the installation of new dashboards in Amidon.

At Mecatronic, the various individual interviews carried out with all the actors at the end of the process plus the finding of a general feeling of satisfaction, led us to predict a favourable response to the experience. But a year later, the researchers found no trace of any dashboard corresponding even remotely to the BSC. In a detailed interview, the director general and the BM revealed that even if the experience of BSC had not been pursued to the stage of a control dashboard, several components of the BSC had not been totally abandoned. The director general "emphasize[d] the difficulty in a Small and Medium-sized Enterprise such as MECATRONIC of dedicating staff and time to the information indicators of the BSC, especially since the unavailability of certain data require[s] additional investment in information systems". However, the industrial control system through the means of operational dashboards, implemented by the quality manager at the level of product lines and workshops, gave full satisfaction. The BSC, however, was not rejected in its entirety. During the course of an annual strategic meeting, where members of the original steering group could be found, the strategy map of the BSC served as a support for collective reflection on the strategy. The group then discussed the map, questioning its timeliness and its relevance to recent developments in the company and its strategic environment. The map could then be redrawn if circumstances required this. Ultimately, only the strategy map was accepted from the BSC. This was probably because it reflected a representation of the business model of the company – an essential component of the strategy. Due to the strategy map of the BSC, the directors of Mecatronic state that they have discovered a teaching method, enabling them to involve a wider set of collaborators – functional and operational – around a collective strategic analysis.

4. Summary and conclusion

The aim of this paper has been to explore the role of the BSC in strategic processes. In a broad sense, the study was motivated by the increasing literature in the area of accounting management which has mobilized the Simons' (1995) levers of control framework in order to examine the links between management control systems and strategy (Abernethy and Brownell, 1999; Marginson, 2002; Henri, 2006; Widener, 2007). According to several authors (Kaplan and Norton, 1996, 2001a, b, 2006; Kaplan, 2009;

Malina and Selto, 2001), the BSC can be used alternatively as a diagnostic control device or, conversely, as an interactive lever of control. Therefore, the BSC is a very interesting object of study for the understanding of the role of management control systems in the forming of emergent strategies or in the controlling of intended strategies.

A certain amount of earlier research has focused on the aptitude of the BSC in strategic alignment or in the control of the strategy. Our main contribution lies in the study of the BSC along the whole process, from design to the use of the BSC in relation to the formulation and control of the strategy.

The research was also motivated by the observation of a gap between abundant literature on the potential of the BSC as an interactive control device, notably in Kaplan and Norton's writings (Kaplan and Norton, 1996, 2001a, b; Kaplan, 2009), and the lack of empirical research investigating the mechanisms of an interactive approach of the BSC. In addition, the design stage seems to have been forgotten by the literature on the BSC. Rather, the design of the BSC appears generally as taken for granted, as a "black box" requiring no discussion. Another contribution of the present study is to investigate, through case studies, the design of the BSC in an interactive manner. A particular interest of our investigations is to distinguish the design and use steps of the BSC and to observe, in two case studies, whether the companies adopt a diagnostic logic or an interactive approach, in each step. In studying the levers of control framework with the BSC, the research evokes a new questioning of the Simons' model. In particular, the two case studies show different styles of designing the BSC in an interactive approach. In the case of Amidon, the design of the BSC has mobilized only the SC, whereas at Mecatronic, the top management wanted to involve an expanded number of subordinates. At the usage step, we have also observed differences between the two companies: at Amidon, the BSC was only used by the financial director in order to prepare the annual budget, whereas in the case of Mecatronic, the BSC disappeared in its final form, and only the strategy map has survived. From these observations we can draw an important conclusion: despite its appearance as a standardized model, the BSC relates to a more complex reality which allows a great variety of design and usage modes to appear.

For practitioners who wish to engage in a BSC experience, the results reveal the importance of the design phase of a BSC in the whole process of its adoption. It appears that the tool *per se* is not as important as its building process. Notably, it seems that the design stage of the BSC could offer an opportunity for collective strategic thinking in the organization. The results have been obtained through a process of immersion of the researchers who have interacted with the actors in the field. So, our research also reveals the traditional limits of action research and particularly the question of generalization of our results. Our study is based on two cases that may have specific characteristics and that have accepted the project of researchers. The results can be questioned in the sense that action research could not be conducted throughout the whole research process. The results are probably marked by the subjectivity of researchers who have influenced the conditions of implementation of the tool. Another approach to designing the BSC might be able to lead to different results. Our results should not be interpreted as limitations of the BSC but more as a discussion of the design process and use of the BSC. However, the study highlights the interest of field studies in accounting management research. Further researches based on the action research or CRA might allow for deeper research as regards some of our questionings.

References

- Abernethy, M.A. and Brownell, P. (1999), "The role of budgets in organizations facing strategic change: an exploratory study", *Accounting, Organizations and Society*, Vol. 24 No. 3, pp. 189-204.
- Ahrens, T. and Chapman, C.S. (2006), "Doing qualitative field research in management accounting: positioning data to contribute to theory", *Accounting, Organizations and Society*, Vol. 31 No. 8, pp. 819-41.
- Anthony, R.N. (1965), *Planning and Control Systems: A Framework for Analysis*, Graduate School of Business Administration, Harvard University, Boston, MA.
- Chandler, A.D. (1962), *Strategy and Structure. Chapters in the History of Industrial Enterprise*, Massachusetts Institute of Technology, Cambridge, MA.
- Chapman, C.S. (2005), *Controlling Strategy, Management, Accounting and Performance Measurement*, Oxford University Press, Oxford.
- Chenhall, R.H. (2005), "Content and process approaches to studying strategy and management control systems", in Chapman, C.S. (Ed.), *Controlling Strategy*, Oxford University Press, Oxford, pp. 10-36.
- Chua, W.F. (1986), "Radical developments in accounting thought", *The Accounting Review*, Vol. LXII No. 4, pp. 601-31.
- Govindarajan, V. and Gupta, A.K. (1985), "Linking control systems to business units strategy: impact on performance", *Accounting, Organizations and Society*, Vol. 10 No. 1, pp. 51-66.
- Henri, J.F. (2006), "Management control systems and strategy: a resource-based perspective", *Accounting, Organizations and Society*, Vol. 31 No. 6, pp. 529-58.
- Hinings, C.R. (1997), "Reflections on processual research", *Scandinavian Journal of Management*, Vol. 13 No. 4, pp. 493-503.
- Kaplan, R.S. (1998), "Innovation action research: creating new management theory and practice", *Journal of Management Accounting Research*, Vol. 10, pp. 89-118.
- Kaplan, R.S. (2009), "Conceptual foundations of the balanced scorecard", in Chapman, C.S., Hopwood, A.G. and Shields, M.D. (Eds), *Handbook of Management Accounting Research*, Elsevier, Oxford, pp. 1253-69.
- Kaplan, R.S. and Norton, D.P. (1996), *The Balanced Scorecard: Translating Strategy into Action*, Harvard Business School Press, Boston, MA.
- Kaplan, R.S. and Norton, D.P. (2001a), *The Strategy Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment*, Harvard Business School Publishing, Boston, MA.
- Kaplan, R.S. and Norton, D.P. (2001b), "Transforming the balanced scorecard from performance measurement to strategic management: part II", *Accounting Horizons*, Vol. 15 No. 2, pp. 147-60.
- Kaplan, R.S. and Norton, D.P. (2006), *Alignment*, Harvard Business School Press, Boston, MA.
- Kasanen, E., Lukka, K. and Siitonen, A. (1993), "The constructive approach in management accounting research", *Journal of Management Accounting Research*, Vol. 5 (Fall), pp. 243-64.
- Labro, E. and Tuomela, T.S. (2003), "On bringing more action into management accounting research: process considerations based on two constructive case studies", *European Accounting Review*, Vol. 12 No. 3, pp. 409-42.
- Langfield-Smith, K. (1997), "Management control systems and strategy: a critical review", *Accounting, Organizations and Society*, Vol. 22 No. 2, pp. 207-32.
- Lukka, K. (2000), "The key issues of applying the constructive approach to field research", in Reponen, T. (Ed.), *Management Expertise for the New Millennium: In Commemoration of*

- the 50th Anniversary of the Turku School of Economics and Business Administration*, Publications of Turku School of Economics and Business Administration, Series A-1: 2000, pp. 113-28.
- Maisel, L.S. (1992), "Performance measurement – the balanced scorecard approach", *Cost Management*, Vol. 6 No. 2, pp. 47-52.
- Malina, M.A. and Selto, F.H. (2001), "Communicating and controlling strategy: an empirical study of the effectiveness of the balanced scorecard", *Journal of Management Accounting Research*, Vol. 13, pp. 47-90.
- Marginson, D.E.W. (2002), "Management control systems and their effects on strategy formation at middle-management levels: evidence from a UK organizations", *Strategic Management Journal*, Vol. 23 No. 11, pp. 1019-31.
- Miles, R.E. and Snow, C.C. (1978), *Organizational Strategy, Structure and Process*, McGraw-Hill Inc, New York, NY.
- Mintzberg, H. (1994), *The Rise and Fall of Strategic Planning*, The Free Press, New York, NY.
- Mintzberg, H. and Waters, J.A. (1985), "Of strategies, deliberate and emergent", *Strategic Management Journal*, Vol. 6 No. 3, pp. 257-72.
- Mintzberg, H., Ahlstrand, B. and Lampel, J. (1998), *Strategy Safari*, The Free Press, New York, NY.
- Nørreklit, H. (2000), "The balance of the balanced scorecard – a critical analysis of some of its assumptions", *Management Accounting Research*, Vol. 1 No. 1, pp. 65-88.
- Nørreklit, H. (2003), "The balanced scorecard: what is the score? A rhetorical analysis of the balanced scorecard", *Accounting, Organizations and Society*, Vol. 28 No. 6, pp. 591-619.
- Pettigrew, A.M. (1997), "What is a processual analysis", *Scandinavian Journal of Management*, Vol. 13 No. 4, pp. 337-48.
- Simons, R.L. (1987), "Planning, control, and uncertainty: a process view", in Bruns, W.J. and Kaplan, R.S. (Eds), *Accounting and Management. Field Study Perspectives*, Harvard Business School Press, Boston, MA, pp. 339-62.
- Simons, R.L. (1995), *Levers of Control. How Managers Use Innovative Control System to Drive Strategic Renewal*, Harvard Business School Press, Boston, MA.
- Voelpel, S.C., Leibold, M., Eckhoff, R.A. and Davenport, T.H. (2006), "The tyranny of the balanced scorecard in the innovation economy", *Journal of Intellectual Capital*, Vol. 7 No. 1, pp. 43-60.
- Widener, S.K. (2007), "An empirical analysis of the levers of control framework", *Accounting, Organizations and Society*, Vol. 32 Nos 7-8, pp. 757-88.

Further reading

- Hansen, A. and Mouritsen, J. (2005), "Strategies and organizational problems: constructing corporate value and coherence in balanced scorecard processes", in Chapman, C.S. (Ed.), *Controlling Strategy*, Oxford University Press, Oxford, pp. 125-50.
- Hofstede, G. (1978), "The poverty of management control philosophy", *Academy of Management Review*, Vol. 3 No. 3, pp. 450-61.

Appendix. Interview guide at Amidon and Mecatronic

(1) What was your role during the implementation of the BSC?

Questions in order to restart or clarify the discussion:

- During the formalization of the strategy?
- During the conception of the strategy map?
- During the selection of the indicators?

- (2) Overall, what did you learn from this experience?
(3) Do you think this experience has been positive?
(4) What have you gained this experience in terms of business strategy?

Questions in order to restart or clarify the discussion:

- A better understanding of the vision and strategy managers?
 - A better understanding of strategic issues of the company?
 - The feeling of being involved in strategic thinking?
 - The feeling of having played an active role in formulating the strategy of our company?
- (6) New ideas and new opportunities have they emerged from the experience? If so, could you give examples?
(7) Have you even provided ideas that have influenced strategic thinking? On what occasion? If so, could you give examples?
(8) Do you think that a new strategy was born from the experience? If so, please tell us.
(9) Overall, what this experience has brought to the company?
(10) What did you think about the method?

Questions in order to restart or clarify the discussion:

- What are its strengths?
 - What are its weaknesses?
- (11) Overall, what are the limits you have identified? Are there any areas for improvement?
(12) From your point of view, what should be the logical continuation of the experiment?
(13) What are your expectations regarding the use of Balanced Scorecard in the company?

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From adoption to use of a management control tool

Case study evidence of a costing method

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Abstract

Purpose – The purpose of this paper is to investigate the processes involved in implementing a full costing method – the unité de valeur ajoutée (UVA) (added value unit) method – as well as to explore the uses made of it.

Design/methodology/approach – Firms that adopted the UVA method between 1995 and 2009 were studied by means of semi-structured interviews with individuals concerned in the firm and with the external consultants. The interviews, which lasted two to three hours, were conducted both during the implementation process and several months later. Secondary data in the form of all the documentation regarding the initial setting up and updating of the method were also collected.

Findings – The main advantages of the UVA method are the fine breakdown of costs, facilitating decision making, and its modest use of resources. Generally, it was adopted by small firms with a “defensive” strategic behaviour. The success of its implementation was largely a result of the strong involvement of management. Nevertheless, it found limited use as a management tool compared to the activity based costing (ABC) method, owing to the small size of the firms that adopted the UVA method.

Originality/value – This research paper is the first to examine the various stages of setting up the UVA method of cost accounting method, by collecting data from users on two occasions, separated by an interval of eight years.

Keywords France, Costs, Activity based costs, Management accounting, UVA method, ABC method, Full costing, Added value unit

Paper type Research paper

Introduction

The utilization and success of costing methods, principally of the activity-based costing (ABC) method, have been the subject of much research[1] attempting to explain the factors involved in adopting and the conditions for implementing a costing method; however, the conclusions are somewhat incomplete and diverging. A different research perspective is therefore worth exploring. Indeed, most of the existing studies have been within the same country, or of firms in the same sector, and based only on one stage of the adoption process (Innes *et al.*, 2000; Anderson, 1995; Gosselin, 1997, 2000), while little attention has been paid to the process of putting a cost accounting method in place. The current study concerns the processes involved in adopting one particular method, the added value unit (UVA) method.

There have been many publications by promoters of the UVA method or its forerunners (the GP or UP methods), from Georges Perrin and his wife Suzanne, to the contemporary Jean Fiévez and Robert Zaya. These publications each present the method and its evolution, usually followed by relatively detailed illustrations of applications. In this paper, we aim to offer a more neutral view of the UVA method than is taken in the above contributions. We will not linger on its purely technical



aspects which have already been widely explored (Bouquin, 2008; Gervais, 2009; Levant and de La Villarmois, 2001; Mévellec, 2005). The research question in this paper is to study the implementation process of a full costing method, namely the UVA method, in order to consider the determining factors in its adoption and more specifically indicate the information it can provide and the uses to which it may be put. In order to position the UVA method in relation to other methods and identify how it differs from them, we compare our observations with the results of research on the ABC method, which remains the benchmark in full costing methods. For this purpose, we collected data at two points in time, 2001[2] and eight years later in 2009, from various firms that had adopted the UVA method between 1995 and 2009 as listed by the consulting firm Les Ingénieurs Associés (LIA) that promotes the method in France.

A review of the literature devoted to the implementation of costing tools, and the ABC method in particular, will allow us to define a reference matrix for the process of putting in place such a method (Section 1). A presentation of the UVA method, the conditions in which it emerged and its evolution will give a clearer definition of the scope of the cases to be studied, that is to say, all current applications of the method in France (Section 2). After having presented the methodology (Section 3), we will use case studies to show the conditions for implementing the method and how the information obtained is used (Section 4). Finally, a comparison with the results of research devoted to the ABC method will allow us to identify where the two methods converge and diverge, both in terms of their implementation and of their use (Section 5).

1. Implementation of a costing method

During the last ten years, a large amount of research in management accounting has been directed towards the ABC method. This research has allowed the phases of the costing method implementation process to be identified. It shows commonalities in each phase (characteristics of the users, information produced, etc.) that can be compared with our observations of the UVA method.

1.1 *Implementation phases of a costing method*

A simplified vision of the organizational innovation process makes a distinction between initiation and implementation (Damanpour, 1991)[3]. Daft (1978) had previously identified four phases: conception, proposal, adoption and implementation. Regardless of how the process adopted is broken down, it is a complex process that is context dependent. Damanpour (1991) thus evokes the types of organization, types of innovation and scope of the innovation. These considerations have been applied to the case of implementing costing methods.

Anderson (1995), in studying in depth a unique case, defined the following six phases[4] of implementation: initiation, adoption, adaptation, acceptance, “routinization” and assimilation. During the initiation phase (1), internal needs and pressure from competition drive change and make it necessary for new solutions to be found. Adoption (2) involves the selection of a solution and the decision to invest resources to facilitate the change. Adaptation (3) allows unforeseen aspects to be dealt with and the limits of the initial proposal to be overcome. Acceptance (4) is the minimum level of use and maintenance of the method to ensure its “survival”. It is in the routinization (5) phase that all former methods are fully replaced. Assimilation (6)

occurs when the method is used, sometimes in an unexpected manner, to improve performance and when it is integrated into other systems.

According to Krumwiede (1998), most of the work devoted to the implementation of the ABC method adopts the same breakdown as that used by Anderson (1995) or a simplified breakdown (Bjornenak, 1997). Gosselin (1997) defines three different phases specific to implementing the ABC method: analysis of activities, analysis of costs per activities and evaluation of costs. All of these authors attempt to associate the factors leading to the success or failure of the method with one or more of these phases.

Apart from the adoption phase, the literature offers little information about the various phases of the process. We suggest certain reasons for this: as regards the initiation phase, while it is easy to identify users of the method, it is less easy to identify those who have evaluated the method but decided not to adopt it. For the subsequent phases, it is difficult to make a clear distinction between adaptation, acceptance and routinization, since these phases overlap.

We have therefore chosen to simplify the breakdown of the implementation process by using three phases: adoption, implementation (covering the adaptation, acceptance and routinization phases) and assimilation (Table I).

1.2 *Determining factors of adoption*

Adoption is defined here as a decision to put the method in place and is therefore a phase of the process of implementing a costing method. This definition is explained in detail by Rogers (1995, p. 21): “adoption of an innovation is the process by which a decision-maker moves from the stage of knowing about an innovation to forming an opinion about it, then deciding to adopt or reject it, executing this decision and confirming this decision”. In their review of the literature on empirical research devoted to the ABC method, Gosselin and Pinet (2002) define three main types of contingency factors determining this phase: size, environmental pressure and the complexity of the production process.

Size is the influencing factor that is the most frequently identified in the adoption of the ABC/ABM method (Gosselin and Pinet, 2002). The method is mainly adopted by large firms (Ask and Ax, 1992; Bright *et al.*, 1992; Drury and Tayles, 1994; Innes and Mitchell, 1995; Krumwiede, 1998; Clarke *et al.*, 1999; Innes *et al.*, 2000), although some authors have come to the opposite conclusions (Malmi, 1999).

When the relationships are less clear, only complex statistical models (models with latent variables and structural equations) allow a finer analysis (Gosselin and Pinet,

Anderson (1995)	Gosselin (1997, 2000)	Phases used in our research
Initiation Adoption Adaptation	Adoption Implementation (analysis of activities, costs per activity and evaluation of costs)	Adoption Implementation
Acceptance Routinization Assimilation		Assimilation or utilization of the information

Table I.
Phases of the process of
adopting a costing method

2002). These may, for example, provide insights into the effects of environmental pressure on the adoption process both directly and indirectly through its impact on organizational factors. In other words, these models make it possible to identify systems of causality[5].

Malmi (1999) and Anderson (1995) explain the adoption of the ABC method by the level of competition. In the course of the studies on environmental factors (essentially strategy) influencing the choice of a management control system (Govindarajan, 1984; Govindarajan and Gupta, 1985; Simons, 1987, 1988, 1990; Govindarajan and Fisher, 1990), Gosselin (1997, 2000) provides a link between the adoption of the ABC method and the strategies defined according to the typology of Miles and Snow: adoption of activity-based accounting is more common in "prospector" firms[6].

According to Krumwiede (1998), Cinquini *et al.* (1999) and Groot (1999), the more complex the production technology, the more likely the adoption of the ABC method. These results confirm those of Shim (1996), for whom product diversity favours the adoption of more sophisticated costing methods.

Most of the research referred to above offers a simplistic vision of the implementation of costing methods, frequently reduced to the decision to adopt them when, in fact, the process is much more complex than that.

1.3 Implementation

As underlined by Gosselin and Pinet (2002), there are few studies that make a distinction between the various implementation phases (Gosselin, 1997, 2000; Krumwiede, 1998), while in our work, we consider implementation to include the phases of adaptation, acceptance and routinization, as defined above (Anderson, 1995).

Gosselin (1997) associates centralization and formalization with the implementation of the ABC method[7]. Krumwiede (1998) has identified factors having an impact on these phases, such as the involvement of management, or the size of the firm.

The limited interest in these phases implies that there is limited knowledge of the technicalities of implementing the methods, even in the detailed case study by Anderson (1995) which mainly focuses on human aspects. Conducted at General Motors (GM) between 1986 and 1993, it identifies 18 variables which affect the success of each of the six stages referred to above in different ways. It is in view of this that Mévellec (2003) proposes a matrix to provide a finer breakdown of the ABC system put in place. This matrix differentiates between spatial parameters (perimeter, analysis mesh and number of cascading levels), human parameters (construction of the matrix, responsibility for accounting and data collection) and logic parameters (causality, traceability and principle of rationality).

1.4 Assimilation or utilization of data

The expectations of firms when they implement a costing technique include improved profitability, cost reductions, improvement of information systems (Bright *et al.*, 1992). The numerous surveys on the utilization of these costing techniques nevertheless have diverging results.

Most of these studies mainly concern full costing methods, and more recently, the ABC method. Indeed, the full costing methods are the most widespread, used either alone or in addition to partial costing methods. For example, in the case of Sweden, Ask and Ax (1992) show the prevalence of full costing methods: 60 per cent of firms apply only full costing and 30 per cent use it with a partial costing method. The same applies in Italy (Cinquini *et al.*, 1999). According to Nobre (2001), the costing and pricing

methods most used in French SMEs are full costing alone or used with other methods in 60 per cent of the cases.

The main utilizations of costing methods are to fix the selling price of products, strategically analyse their profitability, improve cost control, customer profitability, identify cost drivers in the budgeting process, improve knowledge of cost origins and improve output. Production costs and especially full costs play an important role in determining selling prices. According to the survey by Bright *et al.* (1992), cost management techniques are mainly used for cost control, fixing selling prices, determining investments and performance management. This survey confirms the studies by Mills (1988) in the UK and Govindarajan and Anthony (1983) in the USA. Studies in other countries have led to similar conclusions. These include Finland (Lukka and Granlund, 1996), Sweden (Ask and Ax, 1992), Japan (Yoshikawa *et al.*, 1989) and Belgium (Theunisse, 1992).

Differences between these countries can, however, be found when it comes to the importance given to the various utilizations of costs. From a sample of 598 firms (106 Canadian, 111 French and 371 Japanese), Bescos *et al.* (2001) came to conclusions about the ABC/ABM method that differed by country. In France, its main use is the setting of product prices, followed by cost cutting. These results confirm those in the survey conducted by Bescos and Cauvin (2000) in France. For them, the ABC/ABM method allows multiple decisions both at an operational and strategic level. By calculating costs and margins, firms may decide to abandon certain products, but these calculations also allow decisions to be made about subcontractors, orders to be accepted and budgets established. According to the study referred to above by Nobre (2001), French SMEs focus strongly on calculating production costs. Cost-price-plus-margin remains their main method of determining prices (used alone in 37 per cent of cases and in comparison to the market prices in 22 per cent of cases). This can be explained by a pricing concept that is less market oriented than in the other countries mentioned (Bescos and Cauvin, 2000). French companies have a more introspective vision of the evaluation of their selling prices on the basis of full costing than in Japan, Canada and Great Britain (Innes *et al.*, 2000) where businesses have a stronger customer focus and where other concepts are promoted such as cost reduction, customer profitability analysis and budgeting.

In this study, the small size of the organizations implementing the UVA method and limited number of people involved in the process make it difficult to clearly identify the separate implementation phases. Nevertheless, we can use a matrix taken from the literature on the implementation of the ABC method in order to analyse this process according to three main phases as described in Table I: adoption, implementation and assimilation or utilization.

The literature also enables us to identify factors explaining how the first two stages progress and some means of comparing the ways in which the methods are used. The decision to put in place or "adopt" such a method appears to depend on the size of the firm, pressure from its environment and the complexity of the production process. The way in which the method is implemented depends on the involvement of management and the size of the firm. The main uses of the data provided by the ABC method are essentially cost control, fixing selling prices, determining investments and performance management. We should, nevertheless, point out that the literature bases its findings on incomplete and sometimes diverging results.

The specificities of the UVA method described in the following section should explain why its results differ from the ABC method.

2. The UVA method: origins and advantages

It is not our intent to present the complete history of the origins of the UVA method here, it already having been the subject of another paper (Levant and de La Villarmois, 2001). We will simply provide a short history of the method in order to present its particularities and to place it in the context of the case studies conducted. The cases presented are limited to those put in place since 1995, when the name UVA method was adopted.

2.1 From the GP method to the UVA method

The GP method was developed by Georges Perrin in the 1940s. He gave the method its initials. In 1946, he set up a consultancy called La Méthode GP. To promote the GP method, he published many articles in professional journals and held conferences, the best known of which, entitled “The principle of unifying the measurement of production in the management of multiple product industries”, was given to the *Société des ingénieurs civils* on 16 November 1953. In 1962, a posthumous work was published by Dunod under the title *Costing and Management Control Using the GP Method* (Perrin, 1962), along with a number of articles.

LIA under the management of Jean Fiévez and Robert Zaya, continued to develop the GP method, renaming it the UP method (for Unité de Production or Production Unit). The method remained unmodified until 1994, with one or two adoptions each year in small- and medium-sized firms. Most of LIA’s business amounted to productivity missions in French groups. The year 1987 was a turning point with the publication of the work by Johnson and Kaplan (1987) which was echoed by a number of publications in the USA and translated into French (Cooper and Kaplan, 1989, 1991). Various works (Lorino, 1991; Mévellec, 1991), articles in the *Revue Française de Gestion* and the “management accounting” section of the *Revue Française de Comptabilité* fuelled the debate about the advantages of the ABC method.

However, the UP method continued to be promoted in France by LIA. The UP method gradually evolved and changed from a method of simply analysing production costs to the analysis of almost all the costs of a firm[8]. In April 1995, in order to break with the previous focus on production alone, the method changed its name to the UVA (Unité de Valeur Ajouté) method.

Having outlined the emergence and evolution of the UVA method, we now review its particularities[9].

2.2 Analysis of the particularities of the UVA method

An analysis of the UVA method (see Appendix 1)[10] enables us to identify its strengths and weaknesses. While the traditional approaches make it necessary to reassess the costs of each centre of responsibility or activity for each period, one of the advantages of the UVA method lies in the allocation of costs for a reference period only. It is therefore possible to adopt a finer breakdown of costs over the various posts than in ABC type methods[11], this being performed only once in a period of around five years (Fiévez *et al.*, 1999). It offers a more detailed picture than the ABC method. While in the ABC method costs are grouped into cost centres (a combination of people, technology, raw materials, methods and environment that produces a given product or service) (Brimson, 1991, p. 103), the UVA method allows for a finer analysis at what is called the “work post” or “UVA post”[12] level, which makes the homogeneity of the costs less of an issue.

Table II presents a summary of the tasks that need to be performed in both methods.

The simplification proposed by the UVA method is based on what Georges Perrin (1962) called hidden constants. Since these constants may vary over time, the promoters of the UVA method preferred to use the term UVA index. They must be regularly updated (every five years) to take into account technological developments or changes in cost structures. The reliability of the method is ensured by the relative stability over time of the constants of independent UVA posts (Gervais, 2009, pp. 207-12).

The fine breakdown of the activity permits a precise analysis of costs, which makes it possible to assess the profitability of each invoice. This is, according to its promoters, the main advantage of the method[13]. It is also presented as a quick and easy costing method for determining the Whale curve of customer profitability or “Kanthal curve”, an example of which is given in Figure 1.

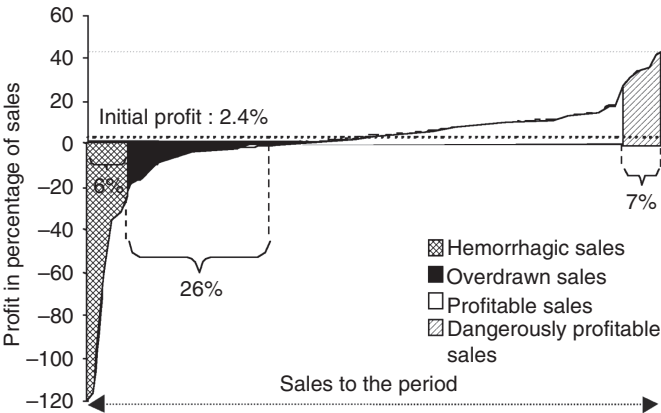
We, however, prefer to place the emphasis on its simplification of the management accounting system.

Regardless of the method used, the precision of the cost analysis will depend on the number of posts or activities, the premises being identical for all the methods. Implementing an ABC type approach makes it necessary, for each period, to allocate the costs to each post. Based on the principle that the costing structure is stable, the UVA method only requires this allocation to be performed once, until the next update of the method. It is therefore possible to envisage a much finer analysis of costs.

Table II.
Comparison of the
ABC method with
the UVA method

Tasks to be performed	ABC method	UVA method
In t_0	Function of the number of activities	Function of the number of posts
During each period	Record the number of cost drivers used by each product or activity. Allocate the costs to the activities	Determine the quantities (of goods/services) produced and determine the indirect costs ^a
Note: ^a This also involves defining the production routes for new goods/services and updating the routes for old ones		

Figure 1.
Example of a profitability
Whale curve per invoice



More generally, the analysis matrix proposed by Bouquin (2008, pp. 96-9) allows the advantages and drawbacks of a management accounting technique to be identified (Table III).

Compared to the ABC method, the UVA method is a sound alternative, although it does present a certain number of problems. For example, any anomaly regarding a particular post will have repercussions on the entire firm, without it being possible to localize it, through the increase in the UVA cost. We may also question the relevance of the stability of the UVA numbers over time (Staykov, 2002; de La Villarmois, 2004).

Most studies examining the introduction and use of full costing concern the ABC method. The results of this paper will extend knowledge of the UVA method. By positioning this method in relation to the benchmark method of ABC, it should advance understanding of the various phases in adoption of costing methods.

3. Methodology

On the basis of the three phases regarding the setting up of a costing method (adoption, implementation and assimilation), our aim is to observe the conditions in which the UVA method is implemented and identify the data it can produce and the uses that are

Criterion	ABC type method	UVA method
Source of information	Comparisons between actual costs and standard costs are available at all levels: activity, product, etc. Comparisons between the cost drivers used and the standards can also be made	The method provides different information. It is not possible to obtain information about actual costs, costs being allocated only for the reference period On the other hand, for each post, it is possible to compare the number of UVA used to the number of standard UVAs The number of UVAs produced per post is another relevant indicator of activity
Allocation of indirect and fixed costs	One of the basic principles of the ABC method consists in identifying the most relevant units of measurement or cost drivers, irrespective of the activity	The UVA method offers a finer analysis than the ABC method, as the task of allocating costs is done only once
Modelling cost behaviour	With the ABC method, the level of analysis is less fine than with the UVA method, as there are fewer activities than posts. On the other hand, the standards can be updated if they are no longer representative	This is one of the strong points of the method: based on the production routes, it is easy to make simulations (new products or reorganization of production)
Understanding the causes of costs	This is independent of the method used. It would, however, be facilitated by detailed knowledge of cost behaviour	The analysis made when the method is put in place is a way of understanding the causes of costs. Its failure to monitor actual use does, however, represent an obstacle to this understanding

Source: Olivier de La Villarmois and Yves Levant

Table III.
Comparison between the
ABC and UVA methods

made of it. Looking at a situation, the researcher should have a clear picture of what is going on and how things are proceeding (Miles and Huberman, 1994). Our research belongs to the category of exploratory case studies: “[...] used to explore the reasons for particular accounting practices. They enable the researcher to generate hypotheses about the reasons for particular practices” (Ryan *et al.*, 2002, p. 144).

Our strategy is based on the collection of data which, for each case study, combine primary data resulting from interviews and secondary data reflecting practices (internal documents, minutes of meetings, etc.). Semi-structured interviews are an important source of data for this research; they were primarily conducted with the project manager in the firm as identified by LIA, whose role was verified. A copy of the interview guide used in this study is included in Appendix 2. The guide was adapted for interviews with other actors.

As well as the project manager, we interviewed a variety of people in each firm: the management, the administrative and financial directors or controllers and the production managers[14]. The consultants involved in setting up and updating the method were also interviewed to confirm certain details or interpretations (see Appendix 2 for more details). The interviews were semi-structured and lasted two to three hours each. In addition, we had access to all the documentation regarding the initial setting up and updating of the method. The risks involved in retrospective interviews was mitigated by questioning different individuals involved in the same phases and cross-referencing the data or comparing it with other archive sources. Details of our information sources are given in Appendix 3.

The firms observed are all firms in which the UVA method was put in place between 1995 and 2009 (with the exception of the “unofficial” implementations mentioned above). The 24 cases studied here correspond to all of the applications of the UVA method implemented since 1995 by LIA or its partners. All the firms contacted were willing to participate in the research. As the name UVA is registered with the Institut National de la Propriété Industrielle (National Industrial Property Institute), any “official” application of the method must to be put in place by LIA or with its agreement. Our choice of research objects is justified as follows:

- It is difficult to study all the applications of the GP method and its derivatives since Second World War without introducing a bias. For example, it would be very difficult to find the archives of companies that no longer exist.
- One of the aims of our research is to attempt to understand why a method developed over half a century ago, and which might appear obsolete, is still being used by some firms.
- If there are any, the rare firms that developed costing tools on the basis of publications on the GP/UVA method, are highly unlikely to really conform to its methodology. Its implementation indeed requires the aid of experts who have specific competencies, are sensitized to management techniques and specialized in time analyses.

The data were collected in two stages, in 2001 and then in 2009. Interviews were transcribed and manually coded. The reason for collecting further data in 2009 was to increase the sample size and to update what we had collected in 2001 for the four firms still using the UVA method after 2001. Our research is not a longitudinal case study, but provides an observation of users of the UVA method at two different points in time separated by an interval of eight years. Of the 24 cases studied here, 13 were observed

in 2001 and 11 in 2009. The data collected in 2001 were therefore updated for the four firms that were still using the UVA method after that time (see the Table AI for more details). Despite the limitations of our approach, the results obtained from the two periods were compared to reveal evolutions.

The breadth of the sample allows us to investigate the context in which the method is applied, as well as its contribution to the firm.

4. Applications of the UVA method

The applications of the UVA method will be described in terms of the three main phases defined above: adoption, implementation and assimilation.

4.1 Adoption: explanatory contingency factors

The three most commonly used criteria for characterizing firms that have adopted UVA are sector of business, size and management accounting system used before adopting the UVA method. Analysis of the interviews brings out an unusual specific criterion: legal independence.

4.1.1 Legal independence. In seven out of 24 cases (29 per cent), the users of the method are independent firms, that is to say they are not attached to a group or a parent company. This situation enables the firm to make more adventurous choices without having to convince a whole range of people involved in the decision-making process or to follow current trends. The other firms using the method belong to groups (Table IV).

Only 29 per cent of the user companies belong to groups:

Contrary to other countries such as Brazil, in France there are very few cases of the method being implemented in groups of firms. In groups, the finance experts think they know everything and mainly focus on budgeting and reporting tools. They give little importance to the analysis of sales profitability, which is the main advantage of the UVA method (Jean Fiévez, manager of LIA).

In all cases, the chief executive played a major role in selecting the method. On account of the resources that need to be provided, this decision cannot be made by the financial director alone.

4.1.2 Business sector. A total of 21 of the 24 firms operated in manufacturing, the remaining three being an agricultural cooperative, a trader and a water company manager. This situation can be explained by the engineering backgrounds of the promoters of the method (Table V):

It is not easy to put the UVA method in place in certain services businesses. The time spent to perform activities is the main driver. The observation of time at the workstation is an essential element in the study of 'UVA posts'. Posts where the solution can be standardized while remaining adjustable to customer needs or those where the solution is unique or almost unique are difficult to measure. Apart from the question of the competence of those in charge of taking these measurements, the problem is aggravated [...] by the reluctance of employees to allow themselves to be measured (partner consultant of LIA).

	Manufacturing		Other sectors		Total
	Numbers	(%)	Numbers	(%)	
2001 study	9	69.2	4	30.8	13
2009 study	8	72.7	3	27.3	11
Total	17	70.8	7	29.2	24

Table IV.
Legal independence of
users of the UVA method

These observations do not normally have any bearing on the scope of the method; it is only natural that its promoters should first tackle the field that is most familiar to them, i.e. manufacturing. The alumni network of Arts et Métiers, a prestigious French engineering school, to which Jean Fievez and Robert Zaya belong also played a role.

It should be noted that in comparison to the observations made in 2001, updating has had no major impact in this respect.

4.1.3 Size. The two criteria used to establish the size of the user firms are their payrolls and turnovers (data are detailed in Appendix 3)[15]. Users of the UVA method are relatively large SMEs: 12 out of 24 have a payroll of at least 100 and 16 (out of 23) have an annual turnover of over ten million euros.

4.1.4 Pre-existing management accounting system. Before describing the management accounting systems already in place, it is perhaps necessary to point out that if the firms had been perfectly satisfied with their management accounting system, they would not have chosen to search for another.

In eight cases, no management accounting system was used before implementing the UVA method. In the other cases, the systems used were not satisfactory: overly basic distribution of costs did not allow a fine enough analysis to be made for decision-making purposes. To be more specific, the management accounting systems used were the following:

- In four cases, a traditional method based on cost centres. The small number of centres, however, produced only approximate analyses.
- In five cases, full costs were evaluated by applying a coefficient to direct costs.
- In the last seven cases, partial costs were determined (most often raw materials costs plus direct labour costs) (Table VI).

4.1.5 Factors prompting the decision to change. One factor is systematically mentioned by users, when explaining the decision to go to another method: insufficient profits. While in the study made in 2001 most of the firms had profitability issues, the situation of new users appears somewhat different (Table VII).

Table V.
Business sectors of
UVA method users

	Manufacturing		Other sectors		Total
	Numbers	(%)	Numbers	(%)	
2001 study	11	84.6	2	15.4	13
2009 study	10	90.9	1	9.1	11
Total	21	87.5	3	12.5	24

Table VI.
Costing method used
previously

	None		Partial costs		Full costs – coefficients		Traditional cost centres		Total	
	Numbers	(%)	Numbers	(%)	Numbers	(%)	Numbers	(%)	Numbers	(%)
2001 study	4	30.8	6	46.2	1	7.7	2	15.4	13	100.0
2009 study	4	36.4	1	9.1	4	36.4	2	18.2	11	100.0
Total	8	33.3	7	29.2	5	20.8	4	16.7	24	100.0

The financial situation of firms adopting the method during the second period is better:

At firm X, we had had negative operating results for several years. This caused much concern for our family shareholders. I thus had to find a quick solution to this drop in profitability. One year after putting in place the UVA method, our profitability increased to 4.5% of our sales then to 6% (general manager of firm 1).

Seven firms mentioned an additional factor:

- drop in turnover generating pricing issues (case 6);
- major industrial projects: knowing one's costs is a means of making the best investment decisions (case 3);
- arrival of a new manager who needed to have reliable information before making decisions (cases 4, 18 and 19);
- the controversy leading to a need for information to justify pricing policies (case 22); and
- competition from China (case 23).

It is not surprising that profitability is one of the main concerns of the company manager who chose to adopt the UVA method. This criterion was indeed central to the arguments put forward by the promoters of the method: the method aims to produce a Whale curve showing the profit or loss relating to each invoice issued by the firm:

Thanks to the UVA method, the calculation of an "analytical" result per invoice allows the firm to set its prices according to the level of service consumed by each sale. This is the real advantage of the method. It is illustrated by Whale curves (Jean Fiévez, manager of LIA).

4.2 Implementation

It must be remembered that the implementation phase covers the phases of adaptation, acceptance and routinization. For the method to be successful, it is essential that the implementation of the method is analysed throughout its adaptation, that resources are made available, and that maintenance procedures are adopted.

As already mentioned, the firms studied were of modest size and therefore the processes observed had nothing in common with those described by Anderson (1995) at GM. The extent of the resources used (on account of the size of the firm), the strong involvement of management, the limited size of the internal team in charge of the project, and the experience of the external consultants meant that all the conditions were met for the project to be successfully completed. The adaptation, acceptance and

From adoption
to use of a
costing method

	2001 study		2009 study		Total
	Numbers	(%)	Numbers	(%)	
Profitable	2	15.4	4	36.4	6
Slightly profitable	3	23.1	5	45.5	8
Breakeven	7	53.8	1	9.1	8
Slightly unprofitable	1	7.7	0	0.0	1
Not applicable	0	0.0	1	9.1	1
Total	13	100.0	11	100.0	24

Table VII.
Profitability of the firms
deciding to adopt the
UVA method

routinization phases were conducted simultaneously; from the beginning of the project, routinization was a major preoccupation of the project manager.

It should be noted that applications of the method in firms operating outside the manufacturing sector require a certain amount of adaptation, which does not, however, call into question the fundamental principles of the method. In one case, substantial efforts, identified as an investment by the consulting firm involved in the project, were made to develop a tool adapted to a business sector, in cooperation with professional associations.

4.2.1 Resources. The implementation of the UVA method requires considerable time and resources, whereas its utilization requires little in terms of resources. Each month, one half of a man-day per month is enough to perform the necessary calculations of the UVA cost and issuing a spreadsheet.

As regards the total implementation time in months, the distribution is as in Table VIII.

It is difficult to compare the implementation times for projects conducted in different time periods, since the nature of the project is no longer the same. In the first period, the promoters of the UVA method did not have a dedicated software program; each firm developed its own program and the consultants of LIA and its partner firms checked that the analyses were consistent. Since 2001, a program has been developed and forms part of the UVA implementation package. This is why it is impossible for us in our new observations to dissociate analysis (assimilated with adaptation) from operationalization (assimilated with routinization).

The implementation times differ little, according to the consultants in charge of the project (LIA or other firm).

The in-house resources used are mainly human resources. On average, 0.73 employees (accountants or production “engineers”) worked on the implementation. The details are presented in Table IX.

If the numbers are weighted according to the duration of the project, we can see that the resources used are similar for both periods: 10.7 months for one person in the first study and 10.0 months in the second. In four cases, someone was hired especially for the project. This illustrates the importance of the project to the firm. Another noteworthy point is that the project concerns both production and accounting.

Table VIII.
Time (in months) needed
to implement the method

Months	2001 study	2009 study	Total of the two studies
Population	13	11	24
First quarter	8	11	10
Second quarter	12	13	12
Third quarter	18	24	18
Minimum	8	8	8
Maximum	24	24	24
Average	11.7	15.5	13.4

Table IX.
Numbers of employees
used for the duration of
the project

	2001 study	2009 study	Total
Minimum	0.20	0.30	0.20
Maximum	1.25	1.75	1.75
Average	0.79	0.66	0.73

To reduce the implementation costs, the consultants were only present one or two days a week to supervise the work performed in-house.

The project was considered to be finished, when the profitability per invoice could be calculated and a Whale curve of customer profitability could be constructed.

4.2.2 Acceptance and routinization: costing and maintenance. Maintenance of the method is essential for ensuring that the model adopted always reflects the current technical and economic situation of the firm. In two cases, a completely new analysis was made to avoid any deviations after the method had been used for six years. Six firms have not yet reached that stage since they have been using the method for <18 months. In seven cases, maintenance is performed regularly to take into account new technological choices or new products. These maintenance operations can be seen as a form of assimilation of the method as the user now plays an active role in the design of its costing system.

4.3 Assimilation: consequences of adopting the UVA method

Two separate questions were addressed regarding use of the method. The first, “how do you use the UVA method?” elicited very operational answers, while the follow-up question, “have you any examples of decisions made following adoption of the method?” produced more strategic answers.

After describing these two aspects of utilization we will consider the sustainability of the method and the organizations over time.

4.3.1 Utilization of the data produced by the method. The uses[16] mentioned by the company managers or persons involved can be divided into four categories:

- pricing (16 cases);
- preparing quotes (ten cases); and
- making simulations and aiding investment decisions (three cases).

Utilization depends directly on the nature of the firm’s business. If production is on a per-order basis, the main utilization will be to prepare quotations, while if the products sold are standard, the UVA method will be used to adopt an appropriate pricing policy. This pricing policy must be considered broadly: it does not only concern products, but also related services such as order placement, preparation, invoicing, etc. Better knowledge of costs enables certain decisions to be made (Table X):

In practice, a quotation is tantamount to a pro forma invoice. The difficulty was to draw up quotations, taking into account the particularities of each product as well as the requirements of each customer in terms of transport and preparation for shipping. Our representatives were able to present much more competitive proposals and we are now getting contracts that were out of our reach before as we were not competitive enough (general manager of firm 6).

	Prices		Quotes		Simulations and investment choices		Total	
	Numbers	(%)	Numbers	(%)	Numbers	(%)	Numbers	(%)
2001 study	9	47.4	7	36.8	3	15.8	19	100.0
2009 study	7	70.0	3	30.0	0	0.0	10	100.0
Total	16	55.2	10	34.5	3	10.3	29	100.0

Table X.
Utilization of the data
produced by the method

There was no systematic comparison of the number of standard UVAs with the actual number of UVAs used. The method is not only a costing tool, but can also be used as a control tool, as indicated by the title of Perrin's (1962) original work. This is obviously a result of the wealth of data produced (which is already a radical change for users of management data). Thus, the marginal contribution of the UVA method to management control is modest, compared to its contribution in the field of costing.

4.3.2 Numerous spill-over effects of the method. The data produced by the method are identical from one firm to another, but the resulting management decisions vary considerably (Table XI).

In the most frequently observed situation, adoption of the UVA method leads to a decision to drop products (nine cases out of 24). Almost all the decisions arising from the system are rationalization decisions.

Most of the firms observed were in some kind of financial difficulty and did not have a relevant management tool; hence, the UVA method offered a solution to their problems:

Firm Y resulted from the splitting of a firm making bed linen for children, which after going into liquidation, was taken over by two associates. When we took over the company, the textile part (spinning, weaving and finishing) was integrated; it employed 30 people and represented 80% of our sales. The textiles market has been in decline for several years with falls in sales by 3 to 6% per year. Analysis of the 'analytical results' provided by the UVA method shows that we should abandon the textile part of our business, which is losing money and is only offset by the [thriving] induction part. At present with 20 employees, sales of 4 million Euro and net profits of 500,000 Euro, company Y has focused on a single activity, the sale of slip-proof pallet liners, and is now making profits (finance director of firm 6).

For example, 45 per cent of the firms observed made most of their turnover with large retailers. These firms encountered the same types of problems in negotiations with their main customers. The results provided by the UVA method, and in particular the Whale curves of profitability of each customer, product and order, systematically led them to renegotiate their terms of sale with their customers (prices, delivery terms, minimum order quantities, etc.). Having detailed information about their cost structures frequently allowed them to complete these renegotiations successfully. If no agreement was reached, the decision to abandon a product, customer or even an activity could be made more easily.

The only exception is case 19. While information produced by the UVA method led this firm to drop products and drop customers, it also identified a development opportunity: the only directly run shop had such good results that the decision was made to open new sales outlets.

Table XI.
The spill-over effects
of putting the
method in place

Utilization	2001 study	2009 study	Total
Decision to drop customers	5	2	7
Decision to drop products	5	4	9
Decision to drop activities	2	0	2
Change to process	1	0	1
Others	0	1	1

It is important to note that in all cases, the nature of the decisions made illustrates the confidence the managers had in the data produced by the method. In one case only, the data took the manager so much by surprise that it was not acted upon. In the great majority of cases, the firms used the method for rationalization purposes. In only one case was the development of new products and a new distribution channel spontaneously mentioned.

4.3.3 Sustainability of the method. One of the most noteworthy results of the study conducted in 2001 was the very strong tendency of users of the UVA method to abandon it (Table XII).

Only four out of 13 firms (31 per cent) were still using the UVA method. The difficulties facing these firms when they adopted the method increased the probability of radical changes such as a buyout (39 per cent of the cases). A new management often imposes its own methods. The fact that the method is abandoned when the company manager leaves is an indication of the level of involvement of the latter in the project. Finally, the implementation of a more comprehensive information system such as ERP makes the UVA method less worthwhile. The quality of the data collected means that we need not be concerned about the problem of approximations related to the principle of hidden constants.

Among the 11 new users, only three abandoned the method for reasons that had already been observed in the previous study. A χ^2 test confirms the link between the period studied and the longevity of the method (4.1 per cent significant); this difference can very probably be explained by the improved financial situation of the firms having adopted the method in the second period.

Apart from a much higher survival rate of the method during the second period, we should also point out that the reasons for abandoning it are not related to the UVA method itself. The company managers were so strongly attached to the information produced by the method, particularly the profits per monthly invoice, that only a radical change, regardless of its origins, would make them abandon it.

5. Discussion: comparison between the ABC and UVA methods

In addition to the description of the method, it is interesting to compare our findings with the results of research on other methods in general, and on the ABC method in

Situation	2001 study	Updating of the 2001 study	2009 study	Total
Still using the method	4	3	8	11
No longer using the method due to their integration into a group	4	5	1	6
No longer using the method due to a change in the information system ^a	2	2	1	3
Firm closed down (one liquidation and one business transfer due to a buyout)	2	2		2
Change of management	1	1	1	2
Total	13	13	11	24

Note: ^aIt is important to note that these two firms have not totally abandoned the idea of using the UVA method. In one of these two cases, the change of information system was imposed by the group

Table XII.
Sustainability of use
of the method

particular. Even if the levels of analysis or research questions posed are different, there are lessons to be learned from each of the three phases defined: adoption, implementation and assimilation.

5.1 Adoption: the central role of management

The adoption phase (in the most limited sense of the term) of a costing method is the most studied and therefore provides us with a great number of comparisons. A review of the literature devoted to the factors involved in adopting the ABC method reveals two main criteria: size and strategy.

Users of the ABC method are mainly large firms (Ask and Ax, 1992; Bright *et al.*, 1992; Drury and Tayles, 1994; Innes and Mitchell, 1995; Krumwiede, 1998; Clarke *et al.*, 1999; Innes *et al.*, 2000; Gosselin and Pinet, 2002). The UVA method, on the other hand and according to what we consider to be its apparent advantages, tends to be adopted by small organizations, even if the criterion of size is difficult to interpret. The largest organizations often constitute a simple aggregation of more modestly sized structures. Among the users of the UVA method, only one company operates on various sites with only operative personnel.

Therefore, in groups composed of atypical structures, it is possible to envisage adopting a method such as the UVA method. This possibility was illustrated by the case of the Snecma plant in Le Creusot[17] which is not included in the population studied, since it abandoned the method before 2001. On the other hand, for large organizations that are simply a duplication of identical “small” structures, it is important to organize their data by putting an ERP in place. This makes it possible to consider adopting a costing method that does not use approximations based on production equivalents.

The second factor explaining why firms adopt the ABC method is their strategic behaviour. “Prospectors” are more likely to use the method than “defenders” (Gosselin, 1997, 2000).

This may appear surprising: it is the firms that give priority to innovation rather than to cost leadership that adopt the ABC method. In the case of users of the UVA method, they have two dominant characteristics: they operate in mature markets and seek ways of rationalizing their working methods in order to improve their profitability. This latter point is illustrated by how the data produced by the UVA method are used: rationalization is a much greater concern than simulation and aiding innovation. Contrary to users of the ABC method, the users of the UVA method are “defenders” rather than “prospectors”.

In addition to the main factors of size and strategic behaviour, we may propose three other factors:

- (1) Users of the UVA method are mainly manufacturing firms, which may be explained by the backgrounds of the promoters of the method.
- (2) Their cost structures contain a large part of indirect costs which explains their dissatisfaction with previous costing systems, if any.
- (3) Finally, the major role played by management must be emphasized.

We can offer two possible explanations for this:

- (1) the promoters of the method do not direct their sales arguments to accountants but to the decision makers; and
- (2) the size of the project. It is thus management that makes the decision to adopt the method and is management that is deeply involved in its implementation.

5.2 Implementation: an obligation to succeed

On account of the difference in size between ABC users and UVA users, it is not easy to make a comparison of their implementation processes. It is, however, possible to relate the phases of analysis of the ABC method (activities, costs per activity and costing) as described by Gosselin (1997) with the two phases identified for the UVA method: analysis (identification of use of resources for each post) and operationalization (construction of databases and automated processing).

Contrary to what has been observed for the ABC method (Gosselin, 1997), in our sample all UVA projects were followed through to completion, that is to say the analysis phase is always followed by operationalization. There are two possible, interrelated explanations for this:

- (1) The implementation phase is long and costly as it requires a considerable amount of work (creation of a product file, production routes and nomenclatures, for example).
- (2) The company management is always strongly involved in the project. It needs data to be able to make decisions and has invested heavily in the project.

We must avoid hasty interpretations regarding the time and resources needed to put the method in place (Meyssonnier, 2003). Putting the UVA method in place often involves much more than simply adding a management accounting module to a pre-existing production management system. The project often includes setting up a production management system and organizing all the necessary data, which explains its complexity.

5.3 Assimilation: few differences with the ABC method

This is last phase of the process. It is not easy to distinguish between the uses of the ABC method as identified by Bescos *et al.* (2001) and those of the UVA method observed in our study. Both methods permit various decisions of both strategic or operational importance to be made with a view to improving profitability. One of the main uses they have in common is the calculation of costs which leads to reorganizing pricing and indirectly to the dropping of certain products and/or customers. This, in fact, corresponds to the reasons for putting in place a costing method in general (Bright *et al.*, 1992) and the ABC method in particular (Shim, 1996). On the other hand, no doubt due to the small size of UVA user firms, and contrary to the results of Bescos *et al.* (2001), no reference is made to decisions regarding subcontractors. In addition there is little effect on process reorganization, and the use of the UVA method for budget control purposes is seldom mentioned by its users. Budget control, however, has little relevance in these small structures.

Use of the UVA method confirms the findings of Bescos and Cauvin (2000), Bescos *et al.* (2001) and Nobre (2001) who show that full costing is used in France and especially in SMEs for determining selling prices. We were unable to find any differences in the uses made of the UVA method compared to those made of the ABC method. We may conclude from this that the UVA method provides organizations of a small size with the same information as that obtained by larger organizations using the ABC method.

The benefits offered by this technique are not, however, always fully exploited. Thus the “possibilities of the method” in terms of management control and productivity described by Georges Perrin (1962, pp. 129-56) in the fifth part of his work, some of which are mentioned by Fiévez *et al.* (1999, pp. 184-86), are very rarely observed.

Concluding comments

This study adds to the existing literature in two ways:

- (1) it supplies information on the utilization of an unusual costing method, the UVA method, comparing this method to ABC which is often considered the benchmark method; and
- (2) it casts light on the adoption process for managerial innovations.

Compared to ABC, the UVA method is an original costing method as illustrated by discussions on the subject of its contributions (Mévellec, 2002; Meyssonier, 2003). It is adopted by small organizations whose strategic behaviour is of a defensive nature. It is often used with a view to rationalizing a business, but is rarely used for development purposes. Like ABC, it is used by firms with large indirect costs and complex production processes. The observed implementation projects are brought to completion owing to the strong involvement of the management. Uses of the UVA and ABC methods are comparable in France, and have a strong focus on decision making for improving profitability; results are determined from many different angles in order to ensure that the decisions made are well founded (preparation of quotes and/or prices, dropping certain customers and/or products, etc.). Use of the UVA method as a management tool is, however, less frequent in comparison to the ABC method, owing to the small size and thus the more limited human and IT resources of the firms that have adopted this method.

Concerning the contribution to the literature on the adoption of new accounting techniques, the three phases of implementation of costing methods (adoption, routinization and assimilation) based on the work of Anderson (1995) proved to be a relevant framework for studying SMEs. This study also brings out various factors that are influential for the success of these phases: they vary and have differing impacts according to the phases, which partially confirms previous studies (Gosselin, 1997, 2000; Krumwiede, 1998; Nobre, 2001). For the adoption phase, strategy is decisive: firms adopting the UVA method are used to a “defender” strategy, while Gosselin (2000) notes that most firms adopting ABC use a “prospector” strategy. Firm size and business sector (which can be considered to indicate the type and complexity of production processes and cost structure) explain adoption of UVA, confirming the findings of Krumwiede (1998) and Groot (1999) in respect of ABC. However, three further adoption factors are also identified: the lack of a pre-existing costing system, legal independence and a poor financial position. For the following stages (routinization and assimilation), the resources mobilized and managerial involvement are important, confirming the conclusions of Krumwiede (1998), Shields and Young (1989), Anderson (1995) and Nobre (2001).

Our research did, however, reveal certain limitations which we are obliged to mention. First, on account of the limited number of firms observed, we must be wary of drawing hasty conclusions, even if we can outline certain general trends. Second, company managers who have chosen to invest in this type of method must be convinced of its usefulness, in addition to which the sales methods of LIA, currently the main promoter of the UVA method in France, based on the Whale curve of profitability and directed towards company managers implies that they select potential users with similar strategic visions. Moreover, our findings do not provide a response to such technical uncertainties of the method as the possible impact of the choice of the reference product, or the assumed stability of the UVA numbers, or Georges Perrin's

hidden constants (Gervais, 2009; Gervais and Levant, 2007, 2008; de La Villarmois, 2004).

Finally, this study includes only the customers of the consulting firm LIA and its partners. The proliferation of publications and courses on the UVA method mean that applications will develop independently of its initial promoters. The characteristics of these users, and the way they use the UVA method could be different to what we have observed and would be worth investigating in a future study.

The case of users of the UVA method illustrates the process of adoption and implementation as well as the various aspects of the uses that can be made of a complete method for determining costs. It will also serve as an illustration of particularities of a technique.

From adoption
to use of a
costing method

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Notes

1. For more details, see the summary of the literature by Gosselin and Pinet (2002).
2. For the specific results of the study made in 2001, see Levant and La Villarmois (2005).
3. Damanpour's most recent works do not offer any further information on this subject (Damanpour *et al.*, 2009).
4. These phases are an adaptation of those developed by Kwon and Zmud (1987) for studying the implementation of information systems.
5. Use of these models is based on the collection of data that is seldom available in the field of management control, either quantitatively or qualitatively.
6. Miles and Snow (1978) describe the strategic behaviour of "prospectors", who are constantly on the lookout for market opportunities and regularly experiment with the possible responses to emerging trends in the environment. "Defenders" behave in the opposite way. They prefer to seek a narrow, stable field of business where they can build up a position of excellence on quality or price, and use a cautious, gradual growth policy.
7. Gosselin (1997) makes a distinction between the adoption phase and the implementation phase.
8. As with the ABC method, most of the time there are charges that cannot be allocated. According to the experience of Jean Fiévez in the field, they represent <5 per cent of the added value of the firm.
9. For more details on the history of the UVE method, see Levant and La Villarmois (2004).
10. For a more detailed presentation in English of the technique, refer to Levant and de La Villarmois (2009) (see Appendix 1).
11. We should in fact speak of families of activity-based models. The way cross-activity aspects and the choice of cost drivers are taken into consideration indicates rather a heterogeneous family of activity-based models than an ABC method.
12. A UVA post or work post is a resource (or set of resources) to which costs can be allocated sufficiently clearly to consider them to be accurate. In practice, the concept of the workstation as commonly used by methods departments when defining production routes, is generally a good starting point for analysing and determining work posts.
13. The promoters of the method use the expression "Whale curve of sales" to describe this analysis.
14. The project manager was sometimes one of these people.

15. Turnover at the time the decision to adopt the method was made. The effects of inflation have not been neutralized. The turnover was not available for one firm, but in this case turnover is not the most relevant indicator of its activity. The firm employs 200 people.
16. As several uses can be mentioned simultaneously, the total number of uses exceeds the number of cases observed.
17. Snecma is a major French manufacturer of engines for commercial and military aircraft, and for space vehicles which merged with Sagem to form Safran. It is not part of the population studied as it stopped using the UP method before 1995 further to the setting up of a group ERP.

References

- Anderson, S.W. (1995), "A framework for assessing cost management system changes: the case of activity-based costing implementation at General Motors, 1986–1993", *Journal of Management Accounting Research*, Vol. 7 (Fall), pp. 1-51.
- Ask, U. and Ax, C. (1992), "Trends in the development of product costing practices and techniques: a survey of the Swedish manufacturing industry", paper presented at the 15th Congress of the European Accounting Association, Madrid, April.
- Bescos, P.-L. and Cauvin, E. (2000), "L'ABC/ABM: où en est on actuellement?", *Echanges*, No. 168, pp. 23-6.
- Bescos, P.-L., Cauvin, E., Gosselin, M. and Yoshikawa, T. (2001), "La mise en place de la méthode ABC/ABM au Canada, en France et au Japon – Etude comparative", paper presented at the 22nd Congress of the Association Française de Comptabilité, Metz, May.
- Bjornenak, T. (1997), "Diffusion and accounting: the case of ABC in Norway", *Management Accounting Research*, Vol. 8 No. 4, pp. 3-17.
- Bouquin, H. (2008), *Comptabilité de gestion*, Economica, Paris.
- Bright, J., Davies, R.E., Downes, C.A. and Sweeting, R.C. (1992), "The deployment of costing techniques and practices: a UK study", *Management Accounting Research*, Vol. 3 No. 3, pp. 201-11.
- Brimson, J.A. (1991), *Activity Accounting: An Activity Based Costing Approach*, Wiley, New York, NY.
- Cinquini, L., Collini, P., Marelli, A., Quagli, A. and Silvi, R. (1999), "A survey on cost accounting practices in Italian large and medium size manufacturing firms", paper presented at the 20th Annual Congress of the European Accounting Association, Bordeaux, May.
- Clarke, P.J., Hill, N.T. and Stevens, K. (1999), "Activity-based costing in Ireland: barriers to, and opportunities for, change", *Critical Perspectives on Accounting*, Vol. 10 No. 4, pp. 443-68.
- Cooper, R. and Kaplan, R.S. (1989), "Mesurer vos coûts pour prendre de bonnes décisions", *Harvard-L'Expansion*, Summer, pp. 40-50.
- Cooper, R. and Kaplan, R.S. (1991), "Mesurez mieux vos prix de revient", *Harvard-L'Expansion*, Autumn, pp. 106-12.
- Daft, R.L. (1978), "A dual-core model of organizational innovation", *Academy of Management Journal*, Vol. 21 No. 2, pp. 193-210.
- Damanpour, F. (1991), "Organizational innovation: a meta-analysis of effects of determinants and moderators", *Academy of Management Journal*, Vol. 34 No. 3, pp. 555-90.
- Damanpour, F., Walker, R.M. and Avellanada, C.N. (2009), "Combinative effects of innovation types and organizational performance: a longitudinal study of service organization", *Journal of Management Studies*, Vol. 46 No. 4, pp. 650-75.

-
- de La Villarmois, O. (2004), "La méthode GP/UVA – Une méthode d'évaluation des coûts pour les petites organisations et les structures atypiques de grands groupes", mémoire d'expertise comptable, May, unpublished document.
- Drury, C. and Tayles, M. (1994), "Product costing in UK manufacturing organizations", *European Accounting Review*, Vol. 3 No. 3, pp. 443-69.
- Fiévez, J., Kieffer, J.-P. and Zaya, R. (1999), *La méthode UVA: du contrôle de gestion à la maîtrise du profit: une approche nouvelle en gestion*, Dunod, Paris.
- Gervais, M. (2009), *Contrôle de gestion*, 9th ed., Economica, Paris.
- Gervais, M. and Levant, Y. (2007), "Comment garantir l'homogénéité globale de la méthode UVA? Deux études de cas", *Finance, Contrôle, Stratégie*, Vol. 10 No. 3, pp. 43-73.
- Gervais, M. and Levant, Y. (2008), "A new way to improve measurement in product costing", *Revue Sciences de Gestion-Management Sciences, Ciencias de Gestion*, No. 65, pp. 309-42.
- Gosselin, M. (1997), "The effect of strategy and organizational structure on the adoption and implementation of activity-based costing", *Accounting, Organizations and Society*, Vol. 22 No. 2, pp. 105-22.
- Gosselin, M. (2000), "Influence de la stratégie sur l'adoption et la mise en œuvre d'une comptabilité par activités", *Finance, Contrôle, Stratégie*, Vol. 3 No. 4, pp. 37-56.
- Gosselin, M. and Pinet, C. (2002), "Dix ans de recherche empirique sur la comptabilité par activités : état de la situation actuelle et perspectives", *Comptabilité, Contrôle, Audit*, Vol. 2, pp. 127-46.
- Govindarajan, V. (1984), "Appropriateness of accounting data in performance evaluation: an empirical evaluation of environmental uncertainty as an intervening variable", *Accounting, Organizations and Society*, Vol. 9 No. 2, pp. 125-35.
- Govindarajan, V. and Anthony, R.N. (1983), "How firms use cost data in price decisions", *Strategic Finance*, Vol. 65 No. 1, pp. 30-4.
- Govindarajan, V. and Fisher, J. (1990), "Strategy, control systems and resource sharing: effects on business-unit performance", *Academy of Management Journal*, Vol. 33 No. 2, pp. 259-85.
- Govindarajan, V. and Gupta, A.K. (1985), "Linking control systems to business unit strategy: impact on performance", *Accounting, Organizations and Society*, Vol. 10 No. 1, pp. 51-66.
- Groot, T.L.C.M. (1999), "Activity-based costing in U.S. and Dutch food companies", *Advances in Management Accounting*, Vol. 7, pp. 47-63.
- Innes, J. and Mitchell, F. (1995), "A survey of activity-based costing in the UKs largest companies", *Management Accounting Research*, Vol. 2 No. 2, pp. 137-53.
- Innes, J., Mitchell, F. and Sinclair, D. (2000), "Activity-based costing in the UKs largest companies: a comparison of 1994 and 1999 survey results", *Management Accounting Research*, Vol. 11 No. 3, pp. 349-62.
- Johnson, H.T. and Kaplan, R.S. (1987), *Relevance Lost: The Rise and Fall of Management Accounting*, Harvard Business School Press, Boston, MA.
- Krumwiede, K.R. (1998), "The implementation stages of activity-based costing and the impact of contextual and organizational factors", *Journal of Management Accounting Research*, Vol. 10, pp. 239-50.
- Kwon, T.H. and Zmud, R.W. (1987), "Unifying the fragmented models of information systems implementation", in Boland, R.J. and Hirschheim, R. (Eds), *Critical Issues in Information Systems Research*, John Wiley, New York, NY, pp. 227-51.
- Levant, Y. and de La Villarmois, O. (2001), "Origine et développement d'une méthode de calcul des coûts: la méthode des Unités de Valeur Ajoutée", *Comptabilité, Contrôle, Audit*, Vol. 2, pp. 45-66.

- Levant, Y. and de La Villarmois, O. (2004), "Georges Perrin and the GP cost calculation method: the story of a failure", *Accounting, Business & Financial History*, Vol. 14 No. 2, pp. 151-81.
- Levant, Y. and de La Villarmois, O. (2005), "La mise en place et l'utilisation d'une méthode d'évaluation des coûts: le cas de la méthode UVA", *Finance, Contrôle, Stratégie*, Vol. 8 No. 2, pp. 175-206.
- Levant, Y. and de La Villarmois, O. (2009), "Simplified customer profitability evaluation: the equivalence-based method", *Cost Management*, Vol. 23 No. 4, pp. 28-34.
- Lorino, P. (1991), *Le controle de gestion stratégique*, Dunod, Paris.
- Lukka, K. and Granlund, M. (1996), "Cost accounting in Finland current practice and trends to development", *The European Accounting Review*, Vol. 5 No. 1, pp. 1-28.
- Malmi, T. (1999), "Activity-based costing diffusion across organizations: an exploratory empirical analysis of Finnish firms", *Accounting, Organizations and Society*, Vol. 24 No. 8, pp. 649-72.
- Mévellec, P. (1991), *Outils de gestion: la pertinence retrouvée*, Editions Comptables Malesherbes, Paris.
- Mévellec, P. (2002), "Libres commentaires: à propos de l'article 'Origine et développement d'une méthode de calcul des coûts: la méthode des unités de valeur ajoutée (UVA)", *Comptabilité, Contrôle, Audit*, Vol. 1, pp. 183-5.
- Mévellec, P. (2003), "Les paramètres de conception des systèmes de coûts: étude comparative", *Comptabilité, Contrôle, Audit*, Vol. 1, pp. 95-110.
- Mévellec, P. (2005), *Les systèmes de coûts*, Dunod, Paris.
- Meyssonnier, F. (2003), "L'approche des coûts complets par les équivalents de production, voie d'avenir ou impasse? (une analyse de la méthode GP-UVA)", *Comptabilité, Contrôle, Audit*, Vol. 1, pp. 111-24.
- Miles, M.B. and Huberman, A.M. (1994), *Qualitative Data Analysis*, Sage, London.
- Miles, R.H. and Snow, C.C. (1978), *Organizational Strategy, Structure and Process*, McGraw-Hill, New York, NY.
- Mills, R.W. (1988), "Pricing decisions in UK manufacturing and service companies", *Management Accounting (UK)*, November, pp. 38-9.
- Nobre, T. (2001), "Méthodes et outils du contrôle de gestion dans les PME", *Finance, Contrôle, Stratégie*, Vol. 4 No. 2, pp. 119-48.
- Perrin, G. (1962), *Prix de revient et contrôle de gestion par la méthode GP*, Dunod, Paris.
- Rogers, E. (1995), *The Diffusion of Innovation*, 4th ed., Free Press, New York, NY.
- Ryan, B., Scapens, R.W. and Theobald, M. (2002), *Research Method & Methodology in Finance & Accounting*, Thompson, London.
- Shields, M.D. and Young, S.M. (1989), "A behavioral model for implementing cost management systems", *Journal of Cost Management*, Winter, pp. 17-27.
- Shim, E. (1996), "Information relevance and conditions for activity-based costing systems in a new manufacturing environment", *Advances in Management Accounting*, Vol. 5, pp. 189-202.
- Simons, R. (1987), "Accounting control systems and business strategy: an empirical analysis", *Accounting, Organizations and Society*, Vol. 12 No. 4, pp. 357-74.
- Simons, R. (1988), "Analysis of the organizational characteristics related to tight budget", *Contemporary Accounting Review*, Vol. 5 (Fall), pp. 267-83.
- Simons, R. (1990), "The role of management control systems in creating competitive advantage: new perspectives", *Accounting, Organizations and Society*, Vol. 15 Nos 1/2, pp. 127-43.

- Staykov, D. (2002), "La validité de la méthode DEA en comptabilité analytique: de la stabilité des indices dans la méthode UVA ou de l'utilité de la précision des calculs de coûts", working paper, University of Paris IX-Dauphine, Paris.
- Theunisse, H. (1992), "Cost accounting: theory and practice. The current state in Belgium", Paper presented at the ELASM workshop on Cost accounting in Europe: Past Traditions and Current Trends, Brussels, December.
- Yoshikawa, T., Innes, J. and Mitchel, F. (1989), "Japanese management accounting: a comparative survey", *Management Accounting*, Vol. 67 No. 10, pp. 20-3.

Further reading

- Bouquin, H. (1997), *Comptabilité de gestion*, Sirey, Paris.
- CNPF (1957), document ronéoté CNPF, Paris, p. 40.
- Ducrocq, C., Gervais, M. and Herriau, C. (2001), "Le suivi de la qualité et des coûts dans les entreprises de services: une enquête sur les pratiques et les outils employés par les départements de contrôle de gestion", *Finance, Contrôle, Stratégie*, Vol. 4 No. 3, pp. 89-121.
- Fiévez, J., Zaya, R., Levant, Y. and Chabanas, C. (2001), "La méthode UVA – Analyser la rentabilité de chaque vente", *Revue Fiduciaire Comptable*, No. 275, pp. 25-55.
- Lauzel, P. (1973), *Comptabilité analytique*, 2nd éd., Sirey, Paris.
- Lebas, M. and Mévellec, P. (1999), "Vingt ans de chantiers de comptabilité de gestion", *Comptabilité, Contrôle, Audit*, special issue, pp. 77-91.
- Malmi, T. and Granlund, M. (2009), "In search of management accounting theory", *European Accounting Review*, Vol. 18 No. 3, pp. 597-620.
- Scapens, R.W. (1990), "Researching management accounting practice: the role of case study methods", *British Accounting Review*, Vol. 22, pp. 259-81.
- Spicer, H. (1992), "The resurgence of cost and management accounting: a review of some recent developments in practice, theories and case research method", *Management Accounting Research*, Vol. 3 No. 1, pp. 1-37.
- Yin, R. (1989), *Case Study Research: Design and Methods*, rev. ed., Sage Publishing, Newbury Park, CA.

Appendix 1. Presentation of the UVA method

According to Fiévez *et al.* (1999) any act of selling indeed has a cost which is the sum of two independent items: the cost of the products sold and the cost accounted to the client:

$$\text{Cost of a sale} = \text{Cost of products} + \text{Client cost.}$$

The cost of a product is the sum of the cost of the incorporated purchases and cost of the added value by the company. The client cost (expenses involved in the transaction) is made up of client-specific spending (transport cost in the case of Free on Board shipping, cost of packaging specific to the client, etc.) and the cost of the added value by the company to the client. This latter cost englobes a commercial cost (prospecting, documentation, trade fairs, etc.), an administrative cost (order booking, invoicing) and logistics cost (handling, storage and shipping).

To evaluate the cost of the incorporated added value, the method determines the consumption of resources at each work post under the normal operating conditions (standard cost perspective). All the work posts are considered before attempting to link almost all the resources to these posts. If the study is successful, around 90 per cent of expenses will be counted as direct expenses and the distinction between direct and indirect expenses becomes meaningless. Resources and work posts are linked up by making a distinction between the cost of

consumables, tooling and maintenance, expenses due to the workforce, expenses due to the wear and tear and obsolescence of the production equipment, expenses connected to the value of the material and expenses related to the area occupied by the work posts. A volume of normal activity is defined for each work post (number of standard work units). Operating costs (consumption of direct resources) are thus attributed to the work posts per work unit, that is to say a direct unit cost excluding purchases incorporated into the products and client-specific spending, which the authors continue to call a post rate.

The cost of the posts and various processes is then expressed in units of added value (UVA).

The UVA is the consumption of the resources necessary for realizing a process (post or product) selected as representative of the complete activity. This process is the base process and its valuation (consumption of resources according to the route of operations) is the base rate.

A post index is calculated for each post. This is the ratio of its consumption of resources to that of the base process (of the UVA); the post index is thus equal to the post rate divided by the base rate. The cost of the various processes is also estimated in terms of UVA equivalents. All the activity of the company is thus expressed in units of added value. By means of this set of coefficients we can obtain the cost of the added value of any process at any time. The cost of the UVA is established during each period.

It is determined from the total accounting costs for the period. If C is the amount of accounting costs for the period, A the amount of purchases incorporated into the products, D the amount of client-specific spending and Q_{UVA} the production of UVA² during the period, we will have:

$$\text{Cost of the UVA} = \frac{C - (A + D)}{Q_{UVA}}.$$

The cost of the added value of a product or process is equal to the UVA cost multiplied by the production of the product or process expressed in UVA equivalents. The cost of the sales to a client is obtained by adding the cost of the materials incorporated into the products sold, the corresponding client-specific spending and the added value costs.

Appendix 2. Interview guide used in this study

Firm name

Legal independence

Sector of business

Customer base

Payroll

Turnover

Financial performance

Sales performance

Strategic issues for introduction of the method

Factor that triggered introduction of the method

Pre-existing costing system

Resources used for introduction of the method

Utilization of the method

Effects of introduction of the method

Date of introduction of the method

Maintenance of the method

Case	Study	Consultants	Two telephone interviews with the person in charge of putting the method in place	Face-to-face interview with the person in charge of putting the method in place	Number of players met (excluding the consultant but including the chief executive)	Face-to-face interview with the chief executive	Discussion with the consultant who put the method in place	Annual turnover (in millions of euros in the implementation year)	Payroll
1	2001	LIA	X	X	3	X	X	8	65
2	2001 ^a	LIA	X	X	3	X	X	6	125
3	2001	Others	X	X	3	X	X	46	70
4	2001	LIA	X				X	20	400
5	2001	LIA	X				X	18	140
6	2001 ^a	LIA	X				X	2	13
7	2001	LIA	X	X	2	X	X	24	145
8	2001	LIA	X	X	1		X	57	500
9	2001	LIA	X				X	12	130
10	2001	LIA	X	X	5	X	X	27	150
11	2001	Others	X	X			X	8	65
12	2001 ^a	Others	X	X			X	8	60
13	2001 ^a	Others	X	X			X	1	7
14	2009	LIA	X	X	3	X	X	14	60
15	2009	LIA	X				X	4	15
16	2009	LIA	X	X	3	X	X	40	100
17	2009	Others	X				X	60	280
18	2009	LIA	X				X	36	28
19	2009	Others	X				X	17	90
20	2009	LIA	X				X	28	180
21	2009	Others	X				X	40	217
22	2009	Others	X				X	ns	200
23	2009	Others	X				X	12	80
24	2009	LIA	X	X	2	X	X	55	40

Note: ^aFirms still using the method after 2001 and whose data were updated in 2009

Table AI.
Data collection
methodology

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Contextual factors affecting the deployment of innovative performance measurement systems

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Abstract

Purpose – The purpose of this paper is to examine the association between strategy, structure and environmental uncertainty, and the design and the use of performance measurements systems. The paper provides empirical evidence on the contextual factors associated with the use of financial and non-financial measures, process and outcome measures and the deployment of innovative performance measurement systems in manufacturing business units.

Design/methodology/approach – A questionnaire was sent to a random sample of 200 Canadian manufacturing organizations. Respondents were asked to indicate to which extent they use different measures. They also had to mention if they had adopted an innovative performance measurement approach such as the balanced scorecard. The questionnaire also included questions to classify organizations as prospectors, defenders or analyzers and to measure the levels of decentralization and perceived environmental uncertainty.

Findings – The results show that there is a significant association between strategy, organizational structure and environmental uncertainty and the use of non-financial and process measures. They also indicate that there is an association between strategy and environmental uncertainty and the deployment of innovative performance measurement systems.

Practical implications – Since the 1990s, performance measurement has become an important issue for both academics and practitioners. The professional literature has suggested that managers should design innovative performance measurement systems such as balanced scorecards that include financial and non-financial measures and also process and outcome measures. This paper provides a better understanding of the factors that affect the implementation of innovative performance measurement systems.

Originality/value – The paper presents one of the few studies that provide a better understanding of the contingent factors that influence the design and the use of innovative performance measurement systems.

Keywords Canada, Performance measures, Balanced scorecard, Manufacturing industries, Strategy, Decentralization, Environmental uncertainty

Paper type Research paper

1. Introduction

Since the beginning of the 1990s, performance measurement has become an important topic for academics and practitioners. The professional literature has suggested that managers should design and use innovative performance measurement systems that include financial and non-financial measures. Kaplan and Norton (1992, 1993, 1996, 2006, 2007) advocated in favor of the design of balanced scorecards. Dixon *et al.* (1990), Nanni *et al.* (1992) proposed the use of integrated performance measurement systems while Lynch and Cross (1995), the performance pyramid. All these systems would put more emphasis on non-financial and process measures and would enable organizations to give more weight to customers, internal processes and innovation in their performance measurement systems. Overall, this change would ultimately help firms to improve their financial performance. These prescriptions have been well received in



practice and most organizations have been looking for instruments like balanced scorecards to help them to integrate financial and non-financial measures as well as process and outcome measures. The research on the deployment of innovative performance measurement systems such as balanced scorecards is very limited. Hoque and James (2000) have confirmed an association between size and the use of balanced scorecards. Olson and Slater (2002) found that prospector firms (Miles and Snow, 1978) emphasize the innovation and growth perspectives in balanced scorecard while defenders focus on the financial perspective.

The purpose of this paper is to provide some empirical evidence on the association between contingent variables such as strategy, organizational structure and perceived environmental uncertainty on the design and the use of innovative performance measurement systems such as balanced scorecards in manufacturing strategic business units.

Research on strategy, innovation and management accounting has suggested that organizations with a prospector strategy would tend more to make the decision to implement and use innovative performance measurement systems like balanced scorecards (Ittner and Larcker, 1998; Olson and Slater, 2002; Ruzita *et al.*, 2006) while defenders would focus more on traditional financial performance measurement systems such as variance analyses and other financial measures. Similarly, research in management accounting and innovation has shown that decentralized organizations would rely more on non-financial and process measures and therefore use more frequently innovative performance measurement systems like balanced scorecards (Govindarajan, 1988; Abernethy *et al.*, 2004; Abernethy and Bouwens, 2005). The research on environmental uncertainty proposes that organizations that face more uncertainty will use more non-financial and outcome measures and would employ more frequently innovative performance measurement systems like balanced scorecards (Tymon *et al.*, 1998).

A survey was used to investigate the association between strategy, organizational structure and perceived environmental uncertainty and the use of innovative performance measurement systems. The results show that 30.7 percent of the respondents claimed that their organization have implemented an innovative performance measurement systems. This is fairly comparable to other studies in the area such as Marr (2001), Speckbacher *et al.* (2003), Mojca *et al.* (2010). The results also show that organizations with a prospector strategy have implemented more frequently innovative performance measurement systems such as balanced scorecards or integrated performance measurement systems. They also tend to rely more on outcome and non-financial measures in comparison to defenders and analyzers.

The study also demonstrates that there is a significant association between the level of decentralization and the deployment of innovative performance measurement systems and also the use of non-financial and outcome measures. This result is in line with the work of Govindarajan (1988) and Abernethy and Bouwens (2005) and suggests that, in more decentralized organizations, managers do not rely only on financial measures to make decisions but also on non-financial measures and that they use innovative performance measurement systems to manage these multiple measures. The results are in the same line for perceived environmental uncertainty. There is a significant association between the level of perceived environmental uncertainty, the deployment of innovative performance measurement systems and also the use of non-financial and outcome measures.

The results of this study have practical implications for organizations who are thinking about the deployment of innovative performance measurement systems like balanced scorecards. Managers of organizations that face greater uncertainty and that have a prospector strategy may need to decentralize their operations and rely more on a good mix of financial and non-financial measures. Therefore, they would tend to rely more on innovative performance measurement systems to manage performance. These results reinforce the prescription that is found in the professional literature.

This study has several contributions. First, it is one of the few empirical studies on the adoption and the implementation of innovative performance measurement systems. Second, it examines the association between contingent variables and the use of financial and non-financial measures, outcome and process measures and the deployment of innovative performance measurement systems and finally provides a better comprehension of the context in which organizations are implementing new performance measurement approaches.

The reminder of the paper is organized in the following manner. First, the literature on strategy and performance measurement will be briefly reviewed to enable the author to justify the hypotheses that are tested in this paper. Second, the literature on organizational structure and third on environmental uncertainty will also be examined to support the hypotheses. In the fifth section, the procedure that was completed to collect the data used in the paper will be described. Then, the results will be examined and discussed in the sixth section. The last section will include a discussion on the next steps in the research process.

2. Strategy

Performance measurement is an essential part of the strategic management process. Measuring performance is the prominent way to assess to which extent strategy has been properly deployed in an organization. Organizations should adapt their performance measurement to their strategy (Dixon *et al.*, 1990).

Miles and Snow (1978, 1994) identified four strategic types of organizations according to the rate at which they change their products and markets: prospectors, defenders, analyzers and reactors. The fundamental difference among these types is the rate of change in the organizational domain. Prospectors are characterized by their dynamism in seeking market opportunities, their capability to develop and produce new products to meet customers' needs, their investment in large amounts of financial resources related to research and development, and their enhancement of teamwork. Prospectors are usually innovators that create change in their respective industries.

Defenders have a strategy that is the polar opposite from prospectors. They operate within a narrow product-market domain characterized by high production volume and low product diversity. Defenders compete aggressively on price, quality and customer service. They engage in little or no product/market development and stress efficiency of operations. Defenders are likely to face a lower level of environmental uncertainty than prospectors (Slocum *et al.*, 1985; Gupta and Govindarajan, 1985; Govindarajan, 1986, 1988; Govindarajan and Fisher, 1990). Analyzers stand between these two categories, sharing characteristics of both prospectors and defenders (DeSarbo *et al.*, 2005). Reactors do not follow a conscious strategy. They are viewed as a dysfunctional organizational type. The premise of the Miles and Snow (1978, 1994) typology is that prospector, defender and analyzer strategies, if properly implemented, can lead to effective performance.

Defenders because of the way they gain a competitive advantage have to focus on cost and process controls. In order to do so, they tend to rely more on financial measures. For example, since defenders need to control their processes and costs, they will emphasize the use of financial measures such as material price and quantity variances or labor rate and efficiency variances. Prospectors gain competitive advantage essentially through innovation and do not prioritize cost control. Thus, prospectors will emphasize the use of non-financial measures such as number of new products or time-to-market for new products. Therefore, we may draw the following hypothesis:

H1A. Organizations that have a prospector strategy tend more to use non-financial measures while defenders will rely more on financial measures.

Organizations that have a prospector strategy tend to have more complex processes than organizations that have a defender strategy. Prospectors operate within a broad-product domain and need to respond rapidly to early signals about new opportunities (Snow and Hrebiniak, 1980). Therefore, they will develop complex processes and activities that range from in-depth market monitoring to customer service. Defenders tend to gain a competitive advantage by offering a limited range of products and by trying to protect their domain by offering lower price products. Their processes will focus on cost and quality control. They do not develop new products but make the ones designed by the prospectors more accessible by lowering the sale prices (Miles and Snow, 1978, 1994). In such context, prospectors will put much more emphasis on outcome measures (as well as on non-financial measures) than defenders because it is more difficult for prospectors to control the activities within their processes with process measures. Controlling the output is a more efficient way to follow up how strategy was deployed. Conversely, defenders will rely more on process measures because they need to monitor closely their operations to maintain their position on the market. Therefore, we may hypothesize that:

H1B. Organizations that have a prospector strategy tend more to use output measures while defenders will rely more on process measures.

Because of their specific characteristics, it is assumed in this study, that organizations that have a prospector strategy tend more to implement and use innovative performance measurement systems like balanced scorecards than analyzers and defenders. The implementation of innovative performance measurement systems enables prospectors to manage the additional emphasis that they put on non-financial and output measures. These types of measures are more heterogeneous and therefore easier to use in the context of an innovative performance measurement systems. The use of innovative performance measurement systems like balanced scorecards also helps to focus more on the innovation and learning, internal process and customer dimensions which are very important for prospectors. If prospectors are able to perform well under these three dimensions, it is expected that they will be able to create more value.

Defenders have a different strategy. They need to focus on the financial and the internal process dimensions. They will rely more, for performance measurement purposes, on financial measures. Defenders will control internal processes with the use of financial measures of internal process such as material price and quantity variances

or labor rate and efficiency variances. In that context, since the measures used are more homogeneous, defender will tend to develop less frequently innovative performance measurement systems like balanced scorecards. Therefore, we may hypothesize that:

H1C. Organizations that have a prospector strategy tend more to adopt innovative performance measurement approaches such as balanced scorecards.

The three hypotheses are summarized in Table I.

3. Organizational structure

Centralization has been used as a proxy for organizational structure in most empirical studies in management accounting. Centralization represents the extent to which the decision process pertaining to the management of divisions or subsidiaries is centralized. The opposite, decentralization, is the extent to which key decisions are made by divisional managers. The link between centralization (decentralization) and management accounting systems has been investigated in many management accounting studies such as Gordon and Narayanan (1984), Chenhall and Morris (1986), Govindarajan (1988), Keating (1997) and Abernethy *et al.* (2004). The research has shown that centralization and decentralization play a key role in the design of management accounting systems.

In the area of performance measurement, the number of studies on the relationship between the design of performance measurement systems and the level of decentralization is limited (Abernethy *et al.*, 2004). Anthony and Govindarajan (1995) have suggested that financial measures are more important at higher hierarchical levels and non-financial measures at lower levels such as at work centers. In decentralized organizations, lower level managers will make more decisions such as determining labor force requirements or selecting the type or brand of new equipment. For most of these decentralized decisions, they will rely on non-financial measures. Therefore, we may elaborate the following hypothesis:

H2A. Decentralized organizations tend more to use non-financial measures than financial measures.

Decentralized organizations are making decision at a more operational level than centralized organizations. Nanni *et al.* (1992) and Lynch and Cross (1995) suggested that process measures are used more frequently in such context. Therefore:

H2B. Decentralized organizations tend more to use process measures than output measures.

Table I.
Strategy and performance measurement

	Prospectors	Defenders
Financial and non-financial measures	More non-financial	More financial
Process and outcome measures	More outcome measures	More process measures
Innovative performance measurement approaches such as balanced scorecards	More innovative performance measurement systems	Less innovative performance measurement systems

In decentralized organizations, managers who are making decisions such as the way production is organized or how purchases are made, are closer to operations. Top management of these organizations relies on strategic and financial information to measure the performance of the entities. In such context, they will tend to develop innovative performance measurement systems like balanced scorecards that will enable them to have a broader vision of the organization and to include non-financial and process measures in their performance measurement system. Furthermore, as demonstrated in Abernethy and Bouwens (2005), decentralization has a positive effect on adaptability and on the propensity of an organization to adopt management accounting innovations such as the balanced scorecard. We have therefore drawn the following hypothesis:

H2C. Decentralized organizations tend more to adopt innovative performance measurement approaches such as the balanced scorecard.

The three hypotheses are summarized in Table II.

4. Environmental uncertainty

Environmental uncertainty is considered as one of the factors that influence the design of management accounting and performance measurement systems. This construct has been studied in several management accounting studies (Tyron *et al.*, 1998). Gordon and Narayanan (1984) found that organizational structure and perceived environmental uncertainty are closely related and that high levels of perceived environmental uncertainty are positively associated with organic structures and the perceived importance of broad-scope information. Chenhall and Morris (1986) reached the same conclusion. Gul (1991) concluded that, when environmental uncertainty is high, sophisticated managerial accounting systems enhance performance. Hoque (2005) demonstrated that when there is a high level of environmental uncertainty, the use of non-financial measures leads to higher organizational performance.

This research suggests that managers of firms operating in a volatile environment attribute more importance to information which is deemed relevant for decision making as opposed to information from traditional systems which is generally produced for the purpose of coordinating and controlling and not for planning.

The following three hypotheses are based on these findings. The three hypotheses suggests, as shown in Table III, that there is an association between the use of non-financial measures, outcome measures and the balanced scorecard and the level of environmental uncertainty. Hoque (2005) demonstrated that organizations facing high level of environmental uncertainty will use more non-financial measures to improve

	Centralized	Decentralized
Financial and non-financial measures	Less non-financial; more financial	More non-financial; less financial
Process and outcome measures	More outcome measures	More process measures
Innovative performance measurement approaches such as balanced scorecards	Less innovative performance measurement systems	More innovative performance measurement systems

Table II.
Organizational measures
and performance
measurement

their performance. *H3A* is tested again in a different setting in this paper. In the context of higher environmental uncertainty, organizations will prefer to use outcome measures. *H3B* is in line with the findings of Chenhall and Morris (1986) who demonstrated that broad-scope information (outcome measures consist of this type of information) was used in the context of higher perceived environmental uncertainty. The third hypothesis for environmental uncertainty is *H3C*. Since non-financial measures and outcome measures are more heterogeneous, organizations that used these types of measures and that face higher environmental uncertainty will tend to adopt innovative performance measurement approaches such as the balanced scorecard to better manage the various information:

- H3A.* Organizations that face a higher level of environmental uncertainty tend to use more non-financial performance measures.
- H3B.* Organizations that face a higher level of environmental uncertainty tend to use more outcome measures.
- H3C.* Organizations that face a higher level of environmental uncertainty tend more to adopt innovative performance measurement approaches such as the balanced scorecard.

5. Research method

In order to respond to the research questions that are addressed in this paper, a questionnaire was designed and sent by mail to vice-president finances, CFO or controllers of a random sample of 200 manufacturing firms drawn from the *Financial Post* “CanCorp” CD-ROM database[1] in 2004.

To ensure that the response rate would be acceptable and to avoid non-responses biases, extensive data collection procedures were performed. An initial copy of the questionnaire was sent with a prepaid and preaddressed envelope. A follow-up letter was sent three weeks later and another questionnaire was sent six weeks after the initial mail out. A research assistant called non-respondents to attempt to know why they had not responded to the survey. All these procedures yielded a response rate of 50.5 percent. The usual procedure to test for a non-response bias was performed. Characteristics of non-respondents were compared to those of the respondents and no significant differences were found.

The purposes of the questionnaire were to assess to which extent organizations use innovative performance measurement systems such as balanced scorecards and integrated performance measurement systems, identify what types of measures they use, what is their strategy and organizational structure and measure the level of

Table III.
Environmental
uncertainty and
performance
measurement

	Lower environmental uncertainty	Higher environmental uncertainty
Non-financial measures	Less non-financial	More non-financial
Outcome measures	More process measures	More outcome measures
Innovative performance measurement approaches such as balanced scorecards	Less innovative performance measurement systems	More innovative performance measurement systems

environmental uncertainty that they face. A summary of the questionnaire is provided in the Appendix. In the first section of the questionnaire, respondents were asked to indicate on a 1 to 5 scale to which extent they use 73 different measures such as net profit or customer ratings. In the second part of the questionnaire, respondents mentioned if they had adopted an innovative performance measurement approach such as balanced scorecards.

In another section of the questionnaire, respondents classified their organizations as prospectors, defenders or analyzers according to the Snow and Hrebiniak (1980) instrument. They also had to indicate the level at which 12 different decisions were made in their organizations to measure the level of decentralization. The questionnaire also included a section on environmental uncertainty. The instruments used to measure decentralization and environmental uncertainty were adapted from Gordon and Narayanan (1984).

6. Results

In the first section of the questionnaire, respondents were asked to indicate if their organization was using an innovative approach for performance measurement such as a balanced scorecard or integrated performance measurement systems. The responses to this question are shown in Table IV. More than 30 percent of the responding manufacturing firms were using an innovative performance measurement approach. These results are comparable to those reported in the few surveys on balanced scorecards that have been published in the year 2000s (Marr, 2001; Speckbacher *et al.*, 2003; Olson and Slater, 2002).

In the second section of the questionnaire, respondents had to classify their organizations according to their strategy. To do so, the Snow and Hrebiniak (1980) instrument was used. This procedure yielded the following results. Among the 101 respondents, (35) were classified as defenders, 20.8 percent (21) as prospectors and 41.6 percent (42) as analyzers as it is shown in Table V.

	Number of organizations	(%)
Adopted an innovative performance measurement approach	18	17.8
Balanced scorecard	12	11.9
Integrated performance measurement	1	1.0
Others	31	30.7
Have not adopted an innovative performance measurement approach	70	69.3
Total	101	100

Table IV.
Adoption of innovative
performance
measurement approach

	Number of organizations	(%)
Have identified a precise type of strategy	35	34.7
Defender	21	20.8
Prospector	42	41.6
Analyzer	98	97.1
Have not identified a precise type of strategy	3	2.9
Total	101	100

Table V.
Type of strategy used

6.1 Results – strategy

H1A suggests that organizations that have a prospector strategy tend to rely more on non-financial measures to measure performance. To test this hypothesis, performance measures were divided into two groups: financial and non-financial measures. Table VI includes the scores for each of the two types of measures. The scores for each of these measures were added and compared with the strategy types. Then, Pearson correlation coefficients between the measures and the strategy were computed. The results show that there is a significant and positive correlation between a prospector strategy and the use of non-financial measures. The correlation coefficient is 0.245 and the *p*-value in 0.013. There is also a significant and negative relationship between a defender strategy and the use of non-financial measures. The correlation coefficient is -0.303 and the *p*-value in 0.002. There were no significant results for analyzers. Thus, *H1A* is confirmed. One limitation is that this test relies on the fact the scale used for both types of measures was going in the same direction instead of using the opposite ends of the scale.

In order to test *H1B*, the 73 measures that were identified and for which respondents needed to indicate on a 1 to 5 scale to which extent they use them, were classified as outcome or process measures. Outcome measures are in italics in Table VI. The scores for each of the measures were added and compared with the different strategy types. Then, the Pearson correlation coefficients between the measures and strategy types were examined. The results show a significant correlation between a prospector strategy and the use of outcome measures. The coefficient is 0.205 and the *p*-value is 0.04. Conversely, there is a significant negative correlation between a defender strategy and the use of outcome measures. The coefficient is -0.247 and the *p*-value 0.0013. There were no significant results for analyzers. Therefore, *H1B* is confirmed and we may conclude that prospectors tend more extensively to use output measures.

To test *H1C*, the author compared the strategy and the decision that was made to use or not an innovative performance measurement approach. The results are shown in Table VII. A χ^2 analysis was performed. The results show that there is a significant association between strategy and the adoption of an innovative performance measurement approach. The χ^2 is high at 15.51 with two df and the *p*-value is below 0.01. Thus, we may conclude that *H1C* is confirmed.

The results for the first three hypotheses are in line with theory and also with what has been suggested in the professional literature. The type of strategy that an organization has will have a direct impact of the selection of performance measures and also on the approach used to manage and communicate these measures.

6.2 Organizational structure

The literature on performance measurement suggests that operation managers focus more on non-financial measures while head office managers put more emphasis on financial measures. To test *H2A*, the scores for the measures classified as financial and non-financial included in Table VI are added and divided by the number of measures. This aggregate score is compared to the total scores for decentralization. The correlation coefficient is positive (0.286) with a *p*-value below 0.01. Therefore, *H2A* is confirmed. Decentralized organizations put more weight on non-financial measures.

The second hypothesis that pertains to organizational structure, *H2B*, suggests that decentralized organizations will rely more on process measures in comparison to centralized organizations. To test *H2B*, measures were divided into two categories:

Financial measures	Mean	SD	Non-financial measures	Mean	SD
Net profit	4.76	0.59	Number of worker injuries	4.07	1.27
Gross profit margin	4.71	0.75	Rate of incidence of injuries	3.98	1.29
Total sales of revenues	4.69	0.77	Backlog in the delivery schedule	3.95	1.36
Profit before tax	4.57	0.85	Number of customer complaints	3.90	1.32
Cost of goods sold	4.30	1.13	Length of time from order delivery	3.75	1.38
Total expenses	4.22	1.04	Length of time from order delivery	3.75	1.38
Total costs by department	4.20	0.95	Number of units produced	3.67	1.39
Amount of raw material inventory	4.13	1.22	Rate of production capacity or resources used	3.66	1.31
Cost per unit produced	4.09	1.14	Level of absenteeism	3.50	1.31
Amount of finished goods inventory	4.08	1.15	Number of machine or plant hours used	3.49	1.38
Total operating cash flows	4.08	1.21	Number of customer orders completed	3.42	1.47
Total net cash flows	4.05	1.20	Number of unit of material components in the inventory	3.42	1.48
Inventory turnover ratio	4.02	1.16	Number of employee hours	3.58	1.24
Account receivable turnover	3.90	1.20	Number of units of finished goods in the inventory	3.57	1.50
Amount of work in process inventory	3.82	1.25	Number of customer orders received	3.56	1.40
Materials price variance	3.68	1.46	Rate of incidence of production defects	3.55	1.36
Amount of material scrap produced	3.65	1.49	Unit of output per hours of labor used	3.26	1.43
Return on sales	3.62	1.52	Number and length of down time	3.20	1.40
Labor efficiency variance	3.51	1.53	Market share	3.19	1.33
Return on investment (ROI)	3.43	1.56	Number of warranty claims	3.15	1.64
Total of cash receipts	3.43	1.55	Customer satisfaction: survey ratings	3.12	2.46
Current ratio	3.40	1.39	Number of doubtful account receivable	3.06	1.46
Total sales per region	3.29	1.58	Unit of output per machine hours used	2.85	1.37
Cost reduction resulting from quality product improvement	3.28	1.32	Number of new employees	2.82	1.34
Total of cash disbursements	3.27	1.50	Number of employee hours per shift	2.75	1.40
Total sales per employee	3.21	1.44	Percentage of key staff turnover	2.75	1.42
Cost quality	3.16	1.38	Number of new products	2.71	1.40
Return on equity (ROE)	3.16	1.58	Tonnage of production waste produced	2.69	1.54
Materials quantity variance	3.12	1.51	Quantity of energy consumed	2.67	1.36
Labor rate variance	3.10	1.63	Number of new customers	2.61	1.37
Amount of training expenses	3.03	1.37	Unit of output per unit of raw materials used	2.52	1.42

(continued)

Performance
measurement
systems

Table VI.
Financial and
non-financial measures

Table VI.

Financial measures	Mean	SD	Non-financial measures	Mean	SD
Total sales per sale representative	2.94	1.53	Time-to-market for new products	2.48	1.32
Cost per damaged unit produced	2.53	1.38	Number of new customer contacts	2.40	1.27
Earnings per share	2.40	1.75	Number of lines or products	2.27	1.30
Average sales order	2.36	1.28	Unit of output per square foot used	1.84	1.04
			Number of removed products	1.81	1.05
			Rate of products removal	1.51	0.80

Notes: Respondents were asked to rate on a five-point scale from rarely (1) to frequently (5) to which extent they are using the measures. Measures in italic are considered as output measures

process and outcome measures. Output measures are in bold in Table VI. The scores for each of the measures were added to provide a total score for each of the categories. The correlation between the score for outcome measures and the level of decentralization were compared. The results show that there is a significant association between the use of process measures and decentralization. The correlation coefficient is high 0.291 ($p < 0.01$). *H2B* is consequently confirmed.

H2C suggests that decentralized organizations will tend more to adopt innovative performance measurement approaches such as the balanced scorecard. To test this hypothesis, the Pearson correlation between the scores for the decentralization instrument adapted from Gordon and Narayanan (1984) and the use of the balanced scorecard was examined. The results show that there is not a significant correlation between the two variables. The correlation coefficient is -0.1196 , the *t*-test score -1.17 with a *p*-value of 0.1217. Therefore, *H2C* is not confirmed. More decentralized organizations are not using more frequently balanced scorecards or other performance measurement improvement initiatives.

The results for the second group of three hypotheses are not exactly what we had expected. Decentralized organizations rely more on non-financial and process measures but they do not use balanced scorecards to manage the measures. One may suggest that these decentralized organizations do not need balanced scorecards because they focus only on a small set of measures, essentially non-financial, to measure the performance of each decentralized units.

6.3 Results – environmental uncertainty

The last set of hypotheses (*H3*) pertains to the association between environmental uncertainty and performance measurement. *H3A* suggests that organizations that face more environmental uncertainty will use more non-financial measures to evaluate the performance of their organizations. To test the hypothesis, the correlation between the scores for the use non-financial measures and for the level of environmental uncertainty was examined. The coefficient is 0.272. It is significant with a *p*-value below 0.01. *H3A* is confirmed.

In a context of high environmental uncertainty managers put more emphasis on outcome measures since it becomes difficult to assess the performance at the processes level. This is the essence of *H2B*. The correlation for the scores for outcome measures and environmental uncertainty were investigated. The coefficient is significant at 0.247 with a *p*-value below 0.05. There is an association between the use of outcome measures and the level of environmental uncertainty.

The last hypothesis, *H3C*, pertained to the association between environmental uncertainty and the use of the balanced scorecard. To test this hypothesis, the correlation between the scores for the environmental uncertainty instrument adapted from Gordon and Narayanan (1984) and the use of the balanced scorecard was

	Defenders	Prospectors	Analyzers	Total
Adopted an innovative performance measurement approach	5	13	12	30
Have not adopted an innovative performance measurement approach	30	7	30	68
Total	35	21	42	98

Table VII.
Strategy types and the
adoption of an innovative
performance
measurement approach

examined. The results show that there is a significant association between environmental uncertainty and the use of balanced scorecards. The correlation coefficient is 0.2096, the *t*-test score 2.09 with a *p*-value of 0.01996. Therefore, organizations that face a higher level of perceived environmental uncertainty are more likely to implement balanced scorecards. Since these organizations have to deal with much uncertainty, they tend to use more non-financial and outcome measures and need a balanced scorecard to keep track of these different dimensions of their organization.

7. Conclusion

The results of this study show that there is some association between strategy, organizational structure and environmental uncertainty and the types of performance measures (financial, non-financial, process, outcome) that are used by organizations and the adoption of innovative performance measurement approaches such as balanced scorecards. This can be considered as the most important contribution of this study. This research has several limitations. The measurement of the use of the different types of measures could be improved as well as the strategy classification of each organization. The statistical analysis could be deepened with the use of a regression model that would integrate many of the contextual factors that may influence the use and the design of innovative performance measurement systems. Measuring performance is an important component of the strategic planning process. Further research need to be completed to better understand how organizations with different strategy types and organizational structure use performance measurement to implement their strategy.

Note

1. This database is based on CanCorp plus, the CanCorp Canadian Corporations database produced by Micromedia Limited, and comprises data from the *Financial Post* data group of Canada. It contains financial and management information extracted from the documents of more than 8,000 companies. The database includes major public corporations incorporated in Canada, major subsidiaries, privately held companies, major federal, provincial and municipal crown corporations, all companies listed on the Toronto Stock Exchange and all firms in the Report on Business Top 1,000 list.

References

- Abernethy, M.A. and Bouwens, J. (2005), "Determinants of accounting innovation implementation", *Abacus*, Vol. 41 No. 3, pp. 217-40.
- Abernethy, M.A., Bouwens, J. and van Lent, L. (2004), "Determinants of control system design in divisionalized firms", *Accounting Review*, Vol. 79 No. 3, pp. 545-70.
- Anthony, R.N. and Govindarajan, V. (1995), *Management Control System*, Irwin, Chicago, IL.
- Chenhall, R.H. and Morris, D. (1986), "The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems", *The Accounting Review*, Vol. 61 No. 1, pp. 16-35.
- DeSarbo, W.S., Di Benedetto, A.C., Song, M. and Sinha, I. (2005), "Revisiting the miles and snow strategic framework: uncovering interrelationships between strategic types capabilities environmental uncertainty and firm performance", *Strategic Management Journal*, Vol. 26 No. 1, pp. 47-74.
- Dixon, J.R., Nanni, A.J. and Vollmann, T.E. (1990), *The New Performance Challenge: Measuring Operations for World Class Competition*, Dow-Jones Irwin, Homewood, IL.

- Gordon, L.A. and Narayanan, V.K. (1984), "Management accounting systems, perceived environmental uncertainty and organization structure: an empirical investigation", *Accounting, Organizations and Society*, Vol. 9 No. 1, pp. 33-47.
- Govindarajan, V. (1986), "Decentralization, strategy and effectiveness of strategic business unit in multi business organizations", *Academy of Management Review*, Vol. 11 No. 4, pp. 844-86.
- Govindarajan, V. (1988), "A contingency approach to strategy implementation at the business-unit level: integrating administrative mechanisms with strategy", *Academy of Management Journal*, Vol. 31 No. 4, pp. 828-53.
- Govindarajan, V. and Fisher, J. (1990), "Strategy, control systems and resource sharing: effects on business-unit performance", *Academy of Management Journal*, Vol. 33 No. 2, pp. 259-85.
- Gul, F.A. (1991), "The effects of management accounting systems and environmental uncertainty on small business managers' performance", *Accounting and Business Research*, Vol. 22 No. 85, pp. 57-61.
- Gupta, A.K. and Govindarajan, V. (1985), "Linking control system to business unit strategy: impact on performance", *Accounting, Organizations and Society*, Vol. 10 No. 1, pp. 51-66.
- Hoque, Z. (2005), "Linking environmental uncertainty to non-financial performance measures and performance: a research note", *The British Accounting Review*, Vol. 37 No. 4, pp. 471-81.
- Hoque, Z. and James, W. (2000), "Linking balanced scorecard measures to size and market factors: impact on organizational performance", *Journal of Management Accounting Research*, Vol. 12 No. 1, pp. 1-17.
- Ittner, C.D. and Larcker, D.F. (1998), "Innovations in performance measurement: trends and research implications", *Journal of Management Accounting Research*, Vol. 10, pp. 205-38.
- Kaplan, R.S. and Norton, D.P. (1992), "The balanced scorecard – measures that drive performance", *Harvard Business Review*, Vol. 86 (January-February), pp. 71-80.
- Kaplan, R.S. and Norton, D.P. (1993), "Putting the balanced scorecard to work", *Harvard Business Review*, Vol. 87 (September-October), pp. 134-47.
- Kaplan, R.S. and Norton, D.P. (1996), *The Balanced Scorecard*, Harvard Business School Press, Boston, MA.
- Kaplan, R.S. and Norton, D.P. (2006), *Strategy Maps*, Harvard Business School Press, Boston, MA.
- Kaplan, R.S. and Norton, D.P. (2007), "Using the balanced scorecard as a strategic management system", *Harvard Business Review*, Vol. 85 Nos 7, 8, pp. 150-61.
- Keating, A.S. (1997), "Determinants of divisional performance evaluation practices", *Journal of Accounting and Economics*, Vol. 23 No. 3, pp. 243-73.
- Lynch, R.L. and Cross, K.F. (1995), *Measure up! Yardsticks for Continuous Improvement*, Blackwell Business, Cambridge, MA.
- Marr, B. (2001), "Scored for life", *Financial Management*, April, 30.
- Miles, R.E. and Snow, C.C. (1978), *Organizational Strategy, Structure and Process*, McGraw-Hill Co, New York, NY.
- Miles, R.E. and Snow, C.C. (1994), *Fit, Failure and the Hall of Fame*, Free Press, New York, NY.
- Mojca, M.D., Peljhan, D., Ponikvar, N., Sobota, A. and Tekavcic, M. (2010), "Determinants of integrated performance measurement systems usage: an empirical study", *Journal of Applied Business Research*, Vol. 26 No. 5, pp. 63-75.
- Nanni, A.J., Dixon, R. and Vollmann, T.E. (1992), "Integrated performance measurement: management accounting to support the new manufacturing realities", *Journal of Management Accounting Research*, Vol. 4 (Fall), pp. 1-19.

- Olson, E.M. and Slater, S.F. (2002), "The balanced scorecard, competitive strategy, and performance", *Business Horizons*, Vol. 45 No. 3, pp. 11-6.
- Ruzita, J., Ibrahim, D.N. and Zainuddin, Y. (2006), "Assessing the alignment between business strategy and use of multiple performance measures using interaction approach", *The Business Review, Cambridge*, Vol. 5 No. 1, pp. 51-60.
- Slocum Jr, J.W., Cron, W.L., Hansen, R.W. and Rawlings, S. (1985), "Business strategy and the management of plateaued employees", *Academy of Management Journal*, Vol. 28 No. 1, pp. 133-54.
- Snow, C.C. and Hrebiniak, L.G. (1980), "Distinctive competence and organizational performance", *Administrative Science Quarterly*, Vol. 25 No. 2, pp. 317-36.
- Speckbacher, G., Bischof, J. and Pfeiffer, T. (2003), "A descriptive analysis of the implementation of balanced scorecards in German speaking companies", *Management Accounting Research*, Vol. 14 No. 4, pp. 361-87.
- Tymon, W.G., Stout, D.E. and Shaw, K. (1998), "Critical analysis and recommendations regarding the role of perceived environmental uncertainty in behavioral accounting research", *Behavioral Research in Accounting*, Vol. 10, pp. 23-46.

Appendix

To what extent does your organization use the following performance measures?
(From rarely to frequently on a 5 point scale)

Number of customer complaints
 Number of warranty claims
 Customer satisfaction: Survey ratings
 Length of time from order to delivery
 Backlog in the delivery schedule
 Number of customer orders received
 Number of customer orders completed
 Number of new customers
 Number of new customer contacts (visits, phone calls, etc.)
 Total sales per employee
 Number of doubtful account receivable
 Account receivable turnover
 Market share
 Total sales per sale representative
 Average sales order
 Total sales per region
 Total sales or revenues
 Gross profit margin
 Number of new products
 Time-to-market for new products
 Number of lines of products
 Number of removed products

Figure A1.
Survey instrument

(continued)

Rate of products removal
 Number of units of finished goods in the inventory
 Number of unit of material components in the inventory
 Amount of training expenses
 Number of machine or plant hours used
 Amount of raw material inventory
 Amount of work in process inventory
 Amount of finished good inventory
 Rate of production capacity or resources used
 Number and length of down time
 Number of new employees
 Number of employee hours
 Number of employee hours per shift
 Number of worker injuries
 Rate of incidence of injuries
 Level of absenteeism
 Percentage of key staff turnover
 Rate of incidence of production or service defects
 Amount of material scrap produced
 Tonnage of production waste produced
 Quantity of energy consumed (e.g. fuel, hydro, natural gaz)
 Production or service yields:
 (1) unit of output per unit of raw materials used;
 (2) unit of output per hours of labour used;
 (3) unit of output per machine hours used; and
 (4) unit of output per square foot used.
 Total costs by departments
 Cost per unit produced
 Cost per damaged unit produced
 Materials price variance
 Materials quantity variance
 Labour efficiency variance
 Labour rate variance
 Cost reduction resulting from quality product improvements
 Cost of quality
 Inventory turnover ratio
 Net profit
 Current ratio
 Cost of goods sold
 Profit before tax
 Earnings per share
 Stock price
 Price-earnings ratio
 Return on sales
 Return of equity (ROE)

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Return on investment (ROI)
Total of cash receipts
Total of cash disbursements
Total net cash flows
Total operating cash flows
Total expenses
Number of units produced
Total expenses
Number of units produced

Has your organization adopted one of the following new performance measurement approaches during the last two years?

Balanced scorecard
Integrated performance measurement
Other (please specify : _____)

How intense is each of the following in your industry? (From negligible to extremely intense, on a 5 point scale)

Price competition
Quality-based competition
Competition by diversity of products
Bidding for purchases or raw materials
Competition for manpower
Competition for selling and distribution

What is the lowest level of management in the group below that has the authority to make the following decisions in your organization? (Line supervisor, Middle manager, Department manager, Plant manager, Head office manager)

Decide to design a new product
Establish the budget level
Choose the methods of work to be used
Select machinery or equipment to be used for a job
Select suppliers
Determine labor force requirements
Select type or brand for new equipment
Decide what type of costing system will apply
Dismiss direct workers
Determine sale prices
Alter responsibilities or areas of work of a line department
Determine personnel rewards

Which of the following descriptions most closely fits your organization compared to other firms in your industry? (Please consider your division or company as a whole and note that none of the types listed below is inherently "good" or "bad").

(continued)

Figure A1.

This type of organization attempts to locate and maintain a secure niche in a relatively stable product area. The organization tends to offer a more limited range of products than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices and so forth. Often this type of organization is not at the forefront of developments in the industry - it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.

This type of organization typically operates within a broad product-market domain that undergoes periodic redefinition. The organization values being "first-in" in new product and market areas even if not all of these efforts prove to be highly profitable. The organization responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this type of organization may not maintain market strength in all of the areas it enters.

This type of organization attempts to maintain a stable, limited line of products or services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. The organization is seldom "first in" with new products. However, by carefully monitoring the actions of major competitors areas compatible with its stable product market base, the organization can frequently be "second in" with a more cost efficient product.

What is, approximately, the total number of employees who work in your organization (plant, division)?

What was the total sales volume (in millions of dollars) of your organization (plant, division) during the last year?

Figure A1.

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Rethinking budgetary slack as budget risk management

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Abstract

Purpose – The purpose of this paper is to draw on a small-scale study that investigated the relationships between the budget-setting process and slack, and how budgetary, behavioural and contextual factors can affect this relationship, to reconceptualise the phenomenon of budgetary slack as a budget risk management strategy.

Design/methodology/approach – A case study method was employed, which enabled the researchers to investigate factors suggested by prior literature that affect slack creation. In total, nine structured interviews were conducted in a state-owned Egyptian petroleum company, which gave the researchers a different way of thinking about the budget slack phenomenon.

Findings – The authors found that slack is created, but not perceived negatively by managers, wherever they are in the organisational hierarchy. Few factors from the literature appeared to have any effect on the creation of budgetary slack, but the covert view of budget slack as a negative behaviour, adopted by early literature was perceived by participants as unethical and inconsistent with Egyptian culture. Managers did not recognise the notion of budgetary slack, though a “contingency” was created and was seen as entirely rational and acceptable by both superiors and subordinates. These findings are consistent with more recent literature in taking a more positive view, and with risk management thinking.

Research limitations/implications – The evidence from this small study in a single organisation obviously cannot be generalised to the whole population. More research is needed in different contexts in order to discover whether managers may perceive this link between budget contingencies and risk management. Also, further research may explore the ethical dimension of behaviour and its possible foundation in religious values and beliefs, to see if this influences how building “contingencies” into budgets is perceived.

Practical implications – If we were to stop portraying the creation of budgetary slack as a negative behaviour and accept that practitioners find it acceptable in managing budgets in an uncertain economic environment, more managers may be open about it.

Originality/value – The main contribution of this paper is that it proposes that what was originally described as a negative behavioural phenomenon be rethought as a positive risk management strategy. Though other authors have viewed budget slack more positively, none has made the explicit link to risk management. The authors reposition budget slack in terms of contingency planning and show how this is consistent with risk management thinking.

Keywords Egypt, Budgetary control, Corporate finances, Budgeting process, Budgetary slack, Context, Organizational behaviour, Risk management

Paper type Research paper



Introduction

Budgets can be used for operational planning, performance evaluation, communicating and coordinating, forecasting and strategy formulation (Berry *et al.*, 2005; Hansen and Van der Stede, 2004). Participation in the budget-setting process varies across different organisations. Despite the potential benefits of participation, e.g. increased motivation and commitment, participation has been perceived as having negative results. One of the possible consequences, “budgetary slack”, is defined as “the intentional

overestimation of expenses and/or underestimation of revenues in the budgeting process” (Chartered Institute of Management Accounting (CIMA), 2000, p. 51).

Budgetary slack, as a so-called “dysfunctional behaviour” has been investigated over the last 30-40 years in this negative paradigm. However, this stream of research reveals contradictory findings. For example, Schiff and Lewin (1968), Brownell (1982), Young (1985) and Lukka (1988) concluded that a high degree of participation can lead to social pressure which provides subordinates with an opportunity and motivation to create budgetary slack. Whereas Collins (1978) found no significant relationship between budget participation and budget slack and Onsi (1973) argued that with participation managers are less likely to create budgetary slack. Cammann (1976) stated that participation has a potential effect in reducing a range of behaviours, including slack. Onsi (1973) also found that slack is created in both good and bad years, to act as “protection” during difficult business conditions.

Govindarajan (1986) suggested that environmental uncertainty might resolve the conflicts between previous studies’ findings. He found that higher participation reduces the propensity to create slack in conditions of high (but not low) levels of environmental uncertainty. Cyert and March (1992) suggested that slack has the ability to absorb fluctuations in an uncertain environment.

Another conflict in prior studies is over the role of privately held information. For example, Baiman and Lewis (1989), Chow *et al.* (1988) and Dunk and Perera (1997) argue that with high levels of information asymmetry and budget emphasis, subordinates attempt to negotiate slack budgets. However, Young (1985) found no significant differences in the amount of budgetary slack between subordinates with private information and those without. Dunk and Nouri (1998) argue that budgetary slack creation depends on a complex set of variables and relationships, and that budgetary participation is only one factor. Other studies focus more on how slack is perceived by superiors than on how it is created.

The contradictory evidence from prior studies provided the motivation for Van der Stede (2000) who found that business units with a differentiation strategy or those that had been more profitable in the recent past were more flexible and that less rigid budgetary controls allowed more scope for slack creation. Stevens (2002) found that ethical and reputational concerns might influence budgetary slack creation. Huang and Chen (2009, p. 669) investigated the effect of managers’ attitudes towards the budget process and creation of slack on the incidence of budgetary slack, describing this behaviour as “underhanded and devious tactics”. With few exceptions, the language used in this stream of research has remained stuck in the negative paradigm, which influenced our own small-scale study.

The main criticism of prior studies in this paradigm is that a small number of variables is isolated and gauged in a positivist cause and effect philosophy, ignoring the many personal and contextual factors that can have a moderating effect. Some experimental studies tried to deal with a complex set of variables including pay and reward schemes, but suffered from creating artificial scenarios where participants may behave differently (when their jobs were not on the line). Some of the surveys were conducted with small or sector-specific samples, which give rise to similar criticisms to those of case studies in terms of generalisability.

A case study was designed to discover if and how budgetary slack is created in the context of an Egyptian petroleum company and to explore how this was viewed by organisational members at different levels. The researchers investigated the factors influencing the relationship between budgetary participation in the budget-setting

process and budgetary slack, using structured interviews based around a common set of interview questions principally drawn from the survey research of Onsi (1973) and Govindarajan (1986).

To some extent our preliminary findings tend to reinforce evidence from prior studies, for example consistent with Young (1985), participants argued that participation is a necessary but not a sufficient condition to create slack and the relation between participation and slack is very complex. However, whilst participation provides the opportunity for slack, it does not appear to cause or motivate it.

Where our evidence conflicts with prior research is on the joint effect between information asymmetry and budget emphasis. Chow *et al.* (1988) and Waller (1987) argued that when information asymmetry is low and budget emphasis is high, subordinates will not be in a position to create slack. This means that with a low level of information asymmetry, subordinates should set a “truthful” budget so the budget emphasis will have no effect on slack. In theory, information asymmetry is reduced due to participation, which allows subordinates to reveal their private information about their departments, which in turn reduces the information gap between superiors and subordinates. However, our study revealed negotiated or agreed slack was created with high budget emphasis and low information asymmetry, as slack was seen by managers at all levels as a sensible cushion against high levels of uncertainty.

Our case study started by examining the phenomenon of budgetary slack in the old paradigm, but went on to explore the other contextual and personal factors. We found that subordinates’ ethics and reputation might prevent slack creation as Stevens (2002) suggested and company culture might do the same thing. Ownership structure did not seem to have any effect on the relation between participation and slack, but it seemed to reduce information asymmetry and may therefore have had an effect on slack creation.

In interpreting and discussing the results, we found no evidence of negative language used by the participants. Conclusions were more consistent with later studies conducted in a different paradigm, such as Davila and Wouters (2005), which gave the researchers a different way of thinking about the budget slack phenomenon. Moving from a traditional budgetary control perspective, the shortcomings of which have been noted (Hansen *et al.*, 2003), where slack creation is seen as a dysfunctional behaviour, to one where managers adopt a more flexible approach in the face of uncertainties in the environment (Frow *et al.*, 2010) we rethink budgetary slack. We reflect on data from our case study such as risk and environmental uncertainty as contextual factors, flexibility and information sharing in the budget process and risk attitude as individual behaviour. Discussion of these more complex issues first with participants, then with other researchers, brought us to a new way of conceptualising the phenomenon that leads to the rethinking of budgetary slack as a risk management strategy.

This paper is structured (somewhat unconventionally) as follows: the next section presents an overview of the context, methodology and findings of our small-scale case study. In the third section, these findings are discussed within a new paradigm of flexibility and risk management. A new conceptual model is presented to incorporate the contextual factors, offering a basis for understanding the budget process in a positive budget risk management framework. In the fourth section, we present the parallels between the budgetary control and risk management processes, using participants’ comments from the case study to illustrate the steps. Finally, the last section contains tentative conclusions and recommendations for further research.

Case study

Context – the research site

E corporation is considered one of the most important institutions owned by the Ministry of Petroleum (2008) in Egypt. This company is a governmental institution responsible for supervision and control of the petroleum industry in Egypt. One of its marketing subsidiaries is C Company, established in 1934. C is considered one of the pioneer companies in marketing various petroleum, oil, chemicals and petrochemicals products. It made a profit before tax of 183 million Egyptian pounds from a turnover of ten billion in 2008. C has a 30 per cent share of the Egyptian petroleum market, the highest share among petroleum marketing companies in Egypt. Egypt relies on crude oil and petroleum products in its exports. This means that oil products, natural gas and other petroleum products play a vital role in boosting the Egyptian economy, and help in attracting foreign direct investment.

Whilst there is price volatility in the oil industry, which coupled with political uncertainty in the region leads to environmental uncertainty, there has been a good record of performance for company C and its parent E over recent years. The budget-setting process starts with sales specialists who work with the sales department manager to submit the budget to the director sales manager (DSM) (see Appendix 2). He[1] studies the draft budget first, then submits it to the company's general manager (GM) who expresses his opinion about it and then submits it to the Chairman of the Board of Directors of C. After negotiations and participation among all these managerial levels, the budget moves to the budget general manager (BGM) in the parent company, E. Interviews were conducted with all managerial levels concerned with the budget-setting process.

Methodology

This small-scale study enabled the researchers to investigate budgetary slack in a real-life context to test out previously inconsistent findings about “how” budgetary slack is created and, more importantly, how it is perceived. Case study research can address complex relationships that cannot be easily illustrated through a simple causal model or by statistical tests (Yin, 1994). However, case study methods, especially with a relatively small number of informants lack the ability to provide a sound basis for generalisation (Ferreira and Merchant, 1992; Moll *et al.*, 2006; Adams *et al.*, 2006). As the purpose of this paper is not to generalise its findings, rather to explore how budgetary slack is created and perceived, the results of this case study cannot be generalised for all Egyptian companies or the oil sector.

Case researchers aim to spend time in the field setting, to make multiple observations and to develop a rapport with the interviewees. The time for this study was limited, but nine interviews of up to 90 minutes across different managerial levels were conducted to address previously posed research questions in a different context to test out conflicting results from prior research. This research was conducted as a preliminary study to find a focus for a more substantive piece of work.

Our research design used fairly structured interviews, designed to maximise internal validity (Silverman, 1985). The researchers used a common set of predetermined questions to guide the interviews (see Appendix 1). The initial questions employed in many prior studies, cover four main themes: budgetary participation, information asymmetry, budget emphasis and propensity to create slack. Supplementary questions were asked to explore more behavioural aspects. The interviews were conducted face-to-face with more structure at the beginning, to yield

data in quantity more quickly (Marshall and Rossman, 2006). Prior to the interviews the researchers got a general overview of managerial structure of the organisation by obtaining the organisation chart which facilitates determining the principal departments. The interviewer also “walked around” the organisation to observe how the work was being undertaken (Gillham, 2003) and listening to people, as an attempt to become familiar with the participants in order to gain their trust.

The interviews were all conducted by one of the researchers in the respondents’ mother tongue. The interviewer did not use a tape recorder, as participants in this region rarely agree to discussions about their behaviour being recorded in this way, even if anonymised. Instead the interviewer wrote down responses to the set questions as soon as possible. These notes include some direct quotes (anonymised in our paper). To reduce participants’ social desirability bias (Dunk and Perera, 1997), whereby interviewees might try to give answers they think the interviewer wants rather than expressing how they truly feel, the purpose of the study (for an academic dissertation) was explained.

In order to enrich the case study, the interviewer used some prompts to gain more detailed responses (Gillham, 2003). “Probes” were also used, e.g. “I am a little bit confused about this point” in order to let interviewees say more about a particular point, to elicit more information from them and corroborate the research “notes and quotes”.

Participants’ ages ranged from 25 to 59 (average 40), their experience in the organisation varied from two to 35 years (average 14) and they had been in their positions from two to seven years (average 4.5 years). Since budgetary slack can be incorporated in both revenue and expenses estimations (Schiff and Lewin, 1968), managers in both revenue and profit centres were covered in our interviews (see Appendix 2).

The researchers’ preliminary analysis was based on the factors found to affect slack creation in prior studies, mainly Onsi (1973) and Govindarajan (1986); the budget process which includes budget participation, information asymmetry and budget emphasis. Other factors such as ethics and reputation (Stevens, 2002) were also explored. The results were used to construct a conceptual model which was then analysed further through the lens of risk management.

Findings

All interviewees agreed that without participation slack cannot be created. However, participation is not the reason for creating budgetary slack. They argued that participation can diminish or decrease the amount of slack in the operating budgets. Since participation increases subordinates’ loyalty and enhances their feelings of responsibility to set reasonable budgets, it does not create slack. S1 said, “participation makes us feel we are the company’s owners rather than employees”. Participation reduces conflicts of interest between superiors and subordinates (principal-agent), which has a positive effect on reducing slack. S4 stated, “participation directs both subordinates’ and superiors’ interest toward achieving company’s objectives”. Also participation increases the trust between superiors and subordinates, so this trust should decrease the amount of slack. S3 said, “how can I cheat someone who trusts me?” In addition, participation succeeds in revealing subordinates’ private information through “negotiations” which plays a vital role in decreasing slack. DSM said, “participation is crucial for the budget setting process to reveal subordinates’ private information”. In summary, participants said that participation diminishes information asymmetry which in turn reduces slack; also participation builds

a trust between superiors and subordinates which also reduces the amount of slack.

There was general agreement that some information asymmetry exists but is not exploited. GM said, “there is a difference between the ability to do something and doing it”. Many constraints preclude the implementation of information asymmetry in building budgetary slack. One of them is information technology improvements which diminishes the effect of information asymmetry. The parent company BGM said, “information technology improvement enables us to obtain any information about either our companies or competitors”. Also intensive competition reduces subordinates’ power to use their private information. S3 said, “competition and improving the company’s market share may prevent subordinates from using information asymmetry as a source of power”. Also the Chair said, “competition reduces the effect of information asymmetry to be used in building slack”. Thus, with limited information asymmetry, it has little effect on budgetary slack creation.

All participants agreed that if departmental managers attain their budget they will receive rewards and promotion. Also they will have a high grade in their Annual Performance Report (APR), which advances their career. This evaluation system has some shortcomings but is still, as the GM said, “the most appropriate objective method”. Setting budgets is based on the actual performance attained in the previous year and recent market studies. These market studies are prepared by superiors, so subordinates cannot prepare an easily attainable budget. The parent company BGM said, “we have reasonable information about both our company and C’s competitors”. “It is an integrated system”, said sales department manager (SDM). This means participation reveals subordinates’ private information, which leads to setting truthful and reasonable budgets. Since all managerial levels are rewarded when they attain the budget, they will do their best to attain this “truthful” budget. Thus, budget emphasis, through participation and other factors, seems to have little effect on budgetary slack.

Interviewees were asked about their propensity to create slack by submitting a budget that could safely be attained. All the participants agreed that managers always set two different levels of budgets; one between themselves and their superiors and another one between themselves and their subordinates. SDM explains that managers set two budgets because from his experience with Egyptian employees, if a manager wants to achieve LE 100 million sales he must ask his subordinates to attain LE 110 million “this is our culture”, which could be interpreted partly as company culture and partly as national culture. All the participants confirmed that “this is not slack”, but rather a means of motivation to attain at least the budget. Sometimes slack is considered acceptable by top management, especially in good business times. The Chair stated that slack from an academic point of view may be a bad thing or dysfunctional behaviour. However, from the business perspective, sometimes in times of good business, it can be considered as a good thing and can be acceptable if “it is within the allowed range and does not conflict with the company’s objectives and ambitions, also it must be as little as possible”.

Most participants argued that superiors’ experience, ethics and reputation can exacerbate or diminish the amount of budgetary slack. These three characteristics have potential effect on the amount of budgetary slack. Table I summarises participants’ comments on superiors’ experience.

Superiors’ experience also affects the negotiation process with subordinates. If a superior changes any aspect in the budget he must justify it, and subordinates must be

convinced about any change. S4 said everyone “must be satisfied with the final budget”. Subordinates might receive thanks, gratitude and rewards even if they do not attain their budget. This, definitely, depends on superiors’ experience to understand the nature of their subordinates and how to deal with them. Ultimately, this will reduce or eliminate subordinates’ propensity to create slack.

Most interviewees argued that their reputation precludes them from engaging in so-called dysfunctional behaviour. Table II illustrates their comments on reputation.

GM said, “reputation may prevent that”, because reputation is very important for every employee within different managerial levels. Thus, any employee seeks to build a strong reputation, so they cannot risk their reputation by creating slack in their budgets. BGM said, “they respect their employment history”. The Chair said, “subordinates’ employment history is considered in their performance evaluation”. So top management is keen to motivate subordinates to enhance and maintain their reputation. Since reputation is considered an essential aspect in subordinates’ performance evaluation, subordinates should not create slack, because they will lose their reputation if they do that, and it will affect their APR and their career, as well. DSM confirmed that, if subordinates have a propensity to create slack, “they will lose their reputation”.

Most of the participants argued that their ethics precluded them from building slack in their budgets. Table III illustrates their comments about ethics. S3 said, “how can I cheat someone who trusts me?”, which suggests that according to his ethics he could

Table I.
Participants’ comments on
superiors’ experience

Research participants	Superiors’ experience
S2	“Superiors’ experience precludes or diminishes use of subordinates’ private information as a source of power”
SDM	“Top management (Chairman of B.O.D) experience prevents that”
GM	“Superiors experience decreases subordinates’ propensity to create budgetary slack”
BGM	“More than 25 years in setting budgets”

Table II.
Participants’ comments
on reputation

Research participants	Reputation
BGM	“They respect their employment history”
GM	“Reputation may prevent that”
DSM	“They will lose their reputation”
Chair	“Employee history is considered in their evaluation”

Table III.
Participants’ comments
on ethics

Research participants	Ethics
S3	“How can I cheat someone who trusts me?”
SDM	“There are constraints to do that, like the departmental manager’s ethics”
GM	“There is a difference between the ability to do something and doing it”
Chair	“Ethics and other factors can reduce budgetary slack”

not create slack as a result of his participation in setting the budget. Consistently, the Chair confirmed that ethics is one factor that can diminish or reduce budgetary slack creation. He said, “ethics and other factors can reduce budgetary slack”.

Personal and contextual factors

Behavioural factors can prevent subordinates from using their private information in creating budgetary slack. Their reputation obligates them to communicate all their private information to their superiors. This is consistent with Stevens (2002), who states that there is a negative association between the reputation concerns and level of information asymmetry. Superiors’ experience is another example of a personal factor that can reduce the information gap between superiors and subordinates. Subordinates were keen to reveal all or some of their private information, when they know that their superiors had years of experience, they could determine whether subordinates retained information or not.

Most of our participants argued that their ethics prevented them from cheating their superiors. Thus, even if there was an information asymmetry, subordinates’ ethics appeared to prevent them from using it to create budgetary slack. This is consistent with Stevens (2002), who found from his laboratory experiment that there is a negative relationship between ethical concerns and slack. Also Evans *et al.* (2001) found that subjects often sacrifice wealth in order to make honest reports. In addition, there are contextual factors that may also prevent subordinates from using private information as a power source. Due to the ownership structure in this particular case, there is legal accountability for any manager who uses his/her private information in setting a lower performance budget.

Contextual factors can reduce the level of information asymmetry. Since this company is a publicly owned company, each manager is required to submit a monthly report which covers all the important aspects in his department, thus reducing information asymmetry. Also, due to the nature of the industry and its strategic importance to the government, transparency is essential for this sector due to the level of government scrutiny. So the ownership structure, public owned in this case, reduces the information gap between superiors and subordinates which in turn reduces the amount of budgetary slack creation. Thus, any effect that information asymmetry and budget emphasis might have on the creation of budgetary slack due to participation is eliminated by other behavioural and contextual factors in this case. This emphasises the complex interrelationship between various factors that cannot be explained by positivist studies.

The most surprising finding from our study was that whilst all interviewees maintained there was no dysfunctional budget behaviour in their organisation, they all admitted to preparing two budgets, to deal with uncertainties by providing a “cushion” of protection from adverse environmental conditions, with widespread knowledge that this practice was taking place. It was not seen as “cheating” but as a sensible strategy in the context and circumstances. This fits with Merchant’s (1989) suggestion that superiors may accept slack to encourage coordination, motivation and innovation by subordinates.

It had become accepted as part of the culture, to build in this element of flexibility, within an allowed range. Van der Stede (2000) found that where more flexibility allows managers to think more long term, this may not be seen as dysfunctional. Our participants certainly held this view. Davila and Wouters (2005) found that under demanding conditions managers needed more flexibility to achieve non-financial goals.

That slack was allowed and even encouraged in the budgeting process, rather than being seen as dysfunctional was a revelation. It indicates the importance of the attitude to risk in the case organisation. Our study may only have scratched the surface in terms of exploring participants' risk attitude in budgetary control, but it was sufficient to include this factor in our conceptual model and reflect further on the parallels between the budget process and risk management.

Conceptual model

Figure 1 shows a proposed conceptual model that renames budgetary slack as budget risk management and positions this centrally with links between the budget-setting process and individual behavioural and contextual factors.

In the budget process cluster of constructs, we still have participation (from prior literature) as a relevant factor, but have changed information asymmetry to information sharing as this was spoken about in a more positive way by our participants. We leave in budget emphasis and reward scheme as relevant factors from prior literature and add flexibility, as this seems to be acknowledged by recent studies and fits with our understanding of the budget process in this case. In the area of individual behaviour, whilst superiors' experience still seems very relevant, especially in terms of ability to judge if the contingency built into the budget is reasonable, we endorse both ethics and reputation as important and add risk attitude as risk aversion seems to lead to more contingencies being considered and regarded as acceptable. In the area of context, it has long been acknowledged that firm size and industry sector would be expected to influence budget-setting behaviour (Otley, 1978). We have added ownership structure, company and national culture and extended environmental uncertainty to include market risk, from our case company data.

We do not speculate about the relative importance of these constructs or how each factor is interrelated with others, but we offer a richer, more complete picture of the multiple factors that may affect the way budgets are set and viewed, based on our rethinking of the phenomenon hitherto called budgetary slack.

Budget risk management

A great deal has been written on risk and risk management generally in the last 20 years, since the publication of the Cadbury Code (1992), but little has been directly

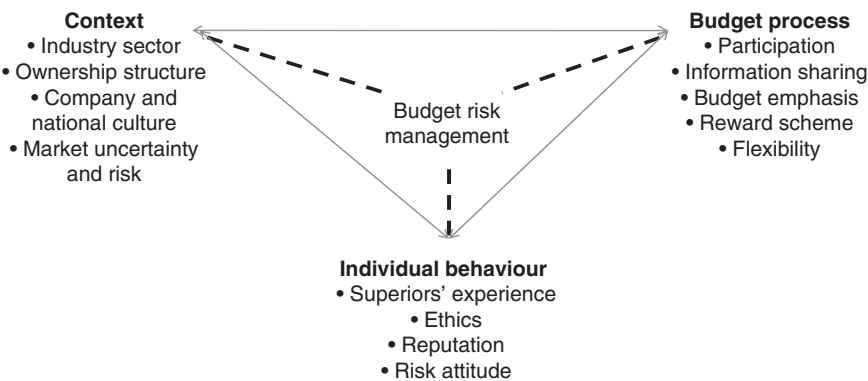


Figure 1.
Conceptual model

related to budgetary control. Risk management appeared for the first time in CIMA's terminology only in 2005, defined as:

The process of understanding and managing the risks that the entity is inevitably subject to in attempting to achieve its corporate objectives (CIMA, 2005, p. 53).

If business risk is seen as the risk that corporate objectives are not achieved, then budget risk may be defined as the risk that performance will deviate from the budget due to planning rather than operating variances, which may arise from changes in the economic environment. Uncertainty in the budget-setting and control process has been studied in both a quantitative way (Otley and Berry, 1980) and a more qualitative way (Collier *et al.*, 2007), but no link has been explicitly made between budget slack and risk management. Risk is an area of management control identified by Berry *et al.* (2009) as an emerging theme, worthy of further research.

The risk management process follows a six step process, which can be described as clarify objectives, identify risks, assess risk, decide on response, report and review (Institute of Risk Management (IRM) *et al.*, 2002), which can be linked to the budgetary control process (Table IV).

The budget is the principal way in which the entity turns its corporate objectives into a financial plan which can be used as a yardstick against which to measure its performance. Variances from a budget when actual performance is measured can either be due to uncontrollable changes in the environment or variations in efficiency and effectiveness of the operating entity, deemed to be more controllable. When flexible budgeting is used, the budget is revised for changes in the volume of activity, leaving the variances explained by price fluctuations or operating efficiency. In a traditional manufacturing industry, this was a way of removing variations in sales performance from production budgets in an attempt to match performance measures with responsibility and control. However, in the oil industry, as can be seen from our case study, it is the price fluctuation that is largely outside managers' control and the entity studied was mainly responsible for marketing and sales. It is therefore arguably the oil price that represents the biggest risk (or environmental uncertainty) in setting an achievable budget.

Table V shows participants comments which illustrate their experience and views on the budget process, but equally fit the stages of risk management using the IRM *et al.* (2002) framework. We found that slack is created, but not perceived negatively by managers, wherever they are in the organisational hierarchy.

The covert view of budget slack as a negative behaviour, adopted by early literature, was perceived by participants as unethical and inconsistent with Egyptian national culture. Managers did not recognise the notion of budgetary slack, though a "contingency" or "cushion" was created and was seen as entirely rational and

Elements of risk management	Budgetary control
1. Clarify organisational objectives	Set initial or draft budget
2. Identify and describe risks	Identify uncertain assumptions
3. Assess likelihood and impact of risks	Carry out what if? analysis
4. Decide and develop risk response action	Build slack or contingency into budget
5. Report risk (enter in risk register)	Measure performance against budget
6. Review (monitor progress)	Analyse and respond to variances from budget

Table IV.
Risk management
framework and the
budget process

Table V.
Evidence of link between
risk management and
budgetary control
processes

Risk management	Budgetary control	Evidence from participants' comments
1. Clarify objectives	Draft budget	"Through participation we are asked to set initial budgets with reasonable figures that reflect our organisation objectives" (S1) "Subordinates must have a holistic view about the corporate objectives, and to be reflected in their budgets" (GM)
2. Identify risks	Identify assumptions	"We should consider uncertainties around any figure in preparing budgets" (S3) "Any uncertain assumption about sales progress must be identified and analysed before setting our budgets" (SDM)
3. Assess risks	Do what if? analysis	"Next year we will employee a new cost reduction plan, so we should estimate low expense than the preceding year. But we will estimate the same amount of expenses, because we should assume the inefficiency risk for this plan" (S2) "If a new sales strategy did not work, what will be our expected sales figure, we should assume this situation" (DM)
4. Decide on response	Agree budget/ contingencies	"We can accept budgetary slack, under certain amount, if it is assumed that a reasonable uncertainty about budget preparing process can exist. Budgetary slack can be considered one tool of hedging against future risk, especially in our sector" (BGM) "I always submit a safely attainable budget, but safely does not mean understated budget, rather it means a budget that reflects the company's real situation under future uncertainties" (DSM) "Slack can be considered as a good thing and can be acceptable if it is within the allowed range and does not conflict with the company's objectives and ambitions, also it must be as little as possible to reflect reasonable future risks" (Chair)
5. Report risk	Measure performance	"If we did not consider risk (what you called slack) in our budgets, we will not able to attain our budgets. This will have a negative effect on our annual performance report" (S4) "We will be blamed on not attaining our budgets, not in reporting high risks" (SDM)
6. Monitor progress	Analyse variances	"Reasonable variances from budgets are a tool to monitor subordinates' performance" (Chair) "Deviations from our budgets are used to monitor and have feedback about our progress" (S1)

acceptable by both superiors and subordinates, as long as it was within an allowable range. These findings are consistent with more recent literature in taking a more positive view, and with risk management thinking.

Enterprise-wide risk management (ERM) is not just about identifying and assessing sources of business risk, but also developing a risk stance, based on the corporate risk appetite, which will be acceptable to stakeholders in the business. Managers responsible for corporate governance in state-owned enterprises might be expected to be more risk averse than those with quoted shares, as governments cannot divest when the risk levels become undesirable. We found managers in our case organisation to be

fairly risk averse and thus more budgetary slack creation was both observed and seen as acceptable. Based on contingency theory, building in contingencies to budgets during times of high market uncertainty, where the probability of variances is greater, can therefore be seen as a sensible risk management practice.

Conclusions

If we were to stop portraying the creation of budgetary slack as a negative dysfunctional behaviour, as researchers working in the positivist paradigm have done and accept that practitioners might find it acceptable in managing budgets in an uncertain economic environment, more managers may be open about it. This requires a paradigm shift (Kuhn, 1970).

The main contribution of this paper is that it proposes that what was originally described as a negative behavioural phenomenon be rethought as a positive risk management strategy. Though one or two authors have viewed budgetary slack more positively, none has made the explicit link to risk management. We reposition budget slack in terms of budget risk management and suggest this is consistent with risk management thinking. This does not come simply from the unexpected finding in our small-scale study, although it may be argued that this is a form of contribution to theory, as Davis (1971) puts it when “what seems to be a bad phenomenon is in reality a good phenomenon”, but from the authors’ extensive discussions and conceptualisations of the phenomenon.

The evidence from this small study in a single organisation obviously cannot be generalised to the whole population. More research is needed in different contexts in order to discover whether managers may perceive this link between budget contingencies and risk management. Also further research may explore the ethical dimension of behaviour and its possible foundation in religious values and beliefs to see if this influences how building “contingencies” into budgets is perceived. This is needed more than ever in the conditions of environmental uncertainty we find ourselves in currently, especially in the region in which the study took place. It is suggested that more qualitative cases, perhaps using action research (Adams *et al.*, 2006) or longitudinal studies are needed to fully explore the nature of interactions within our conceptual model and develop the concepts of budget risk management further.

Note

1. All managers interviewed in this organisation were male. There is little or no female participation in the management of oil companies in Egypt.

References

- Adams, C., Hoque, Z. and McNicholas, P. (2006), “Case studies and action research”, in Hoque, Z. (Ed.), *Methodological Issues in Accounting Research: Theories and Methods*, Spiramus, London, pp. 361-73.
- Baiman, S. and Lewis, B.L. (1989), “An experiment testing the behavioural equivalence of strategically equivalent employment contracts”, *Journal of Accounting Research*, Vol. 27 No. 1, pp. 1-20.
- Berry, A., Broadbent, J. and Otley, D. (2005), *Management Control: Theories, Issues and Performance*, Palgrave Macmillan, New York, NY.

- Berry, A.J., Coad, A.F., Harris, E.P., Otley, D. and Stringer, C. (2009), "Emerging themes in management control: a review of recent literature", *British Accounting Review*, Vol. 41 No. 1, pp. 2-20.
- Brownell, P. (1982), "The role of accounting data in performance evaluation, budgetary participation and organizational effectiveness", *Journal of Accounting Research*, Vol. 20 No. 1, pp. 12-27.
- Cadbury Code (1992), *Report of the Committee on the Financial Aspects of Corporate Governance: The Code of Best Practice*, Professional Publishing, London.
- Cammann, C. (1976), "Effects of the use of control systems", *Accounting, Organizations and Society*, Vol. 1 No. 4, pp. 301-13.
- Chartered Institute of Management Accounting (CIMA) (2000), *Management Accounting Official Terminology*, CIMA Publication, London.
- Chartered Institute of Management Accounting (CIMA) (2005), *Management Accounting Official Terminology*, CIMA Publication, London.
- Chow, C.W., Cooper, J.C. and Waller, W.S. (1988), "Participative budgeting: effects of a truth inducing pay scheme and information asymmetry on slack and performance", *The Accounting Review*, Vol. 63 No. 1, pp. 111-22.
- Collier, P., Berry, A.J. and Burke, G.T. (2007), *Risk and Management Accounting: Best Practice Guidelines for Enterprise-Wide Internal Control Procedures*, Elsevier, Oxford.
- Collins, F. (1978), "The interaction of budget characteristics and personality variables with budgetary response attitudes", *The Accounting Review*, Vol. 53 No. 2, pp. 324-35.
- Cyert, R. and March, J. (1992), *The Behavioral Theory of the Firm*, 2nd ed., Blackwell Publishers, Cambridge, MA.
- Davila, T. and Wouters, M. (2005), "Managing budget emphasis through the explicit design of conditional budgetary slack", *Accounting, Organizations and Society*, Vol. 30 Nos 7-8, pp. 587-608.
- Davis, M. (1971), "That's interesting! Towards a phenomenology of sociology and a sociology of phenomenology", *Philosophy of the Social Sciences*, Vol. 1 No. 4, pp. 309-41, available at: www.mang.canterbury.ac.nz/writing_guide/marketing/index.shtml
- Dunk, A. and Nouri, H. (1998), "Antecedents of budgetary slack: a literature review and synthesis", *Journal of Accounting Literature*, Vol. 17 No. 1, pp. 72-96.
- Dunk, A. and Perera, H. (1997), "The incidence of budgetary slack: a field study exploration", *Accounting, Auditing & Accountability Journal*, Vol. 10 No. 5, pp. 649-64.
- Evans III, J.H., Hannan, R., Krishnan, R. and Moser, D. (2001), "Honesty in managerial reporting", *The Accounting Review*, Vol. 76, No. 4, pp. 537-59.
- Ferreira, L.D. and Merchant, K.A. (1992), "Field research in management accounting and control: a review and evaluation", *Accounting, Auditing & Accountability Journal*, Vol. 5 No. 4, pp. 3-34.
- Frow, N., Marginson, D. and Ogden, S. (2010), "'Continuous' budgeting: reconciling budget flexibility with budgetary control", *Accounting, Organizations and Society*, Vol. 35, No. 4, pp. 444-61.
- Gillham, B. (2003), *Case Study Research Methods*, Continuum, London.
- Govindarajan, V. (1986), "Impact of participation in the budgetary process on managerial attitudes and performance: universalistic and contingency perspectives", *Decision Sciences*, Vol. 17 No. 3, pp. 496-516.
- Hansen, S., Otley, D. and Van Der Stede, W. (2003), "Practice developments in budgeting: an overview and research perspective", *Journal of Management Accounting Research*, Vol. 15 No. 1, pp. 95-116.

- Hansen, S. and Van der Stede, W.A. (2004), "Multiple facets of budgeting: an exploratory analysis", *Management Accounting Research*, Vol. 15 No. 4, pp. 415-39.
- Huang, C.L. and Chen, M.L. (2009), "The effect of attitudes towards the budgetary process on attitudes towards budgetary slack and behaviors to create budgetary slack", *Social Behavior and Personality*, Vol. 37 No. 5, pp. 661-72.
- Institute of Risk Management (IRM), The Association of Insurance and Risk Managers (AIRMIC) and ALARM (2002), *A Risk Management Standard*, ALARM, London.
- Kuhn, T.S. (1970), *The Structure of Scientific Revolutions*, 2nd ed., The University of Chicago Press, Chicago, IL.
- Lukka, K. (1988), "Budgetary biasing in organizations: theoretical framework and empirical evidence", *Accounting, Organizations and Society*, Vol. 13 No. 3, pp. 281-301.
- Marshall, C. and Rossman, G.B. (2006), *Designing Qualitative Research*, Sage, London.
- Merchant, K. (1989), *Rewarding Results: Motivating Profit Center Managers*, Harvard Business School Press, Boston, MA.
- Ministry of Petroleum (2008), *The Egyptian Ministry of Petroleum*, available at: www.petroileum.gov.eg/InvestEnvironment.aspx (accessed 11 August 2009).
- Moll, J., Major, M. and Hoque, Z. (2006), "The qualitative research tradition", in Hoque, Z. (Ed.), *Methodological Issues in Accounting Research: Theories and Methods*, Spiramus, London, pp. 375-94.
- Onsi, M. (1973), "Factor analysis of behavioural variables affecting budgetary slack", *The Accounting Review*, Vol. 48 No. 3, pp. 535-48.
- Otley, D. (1978), "Budget use and managerial performance", *Journal of Accounting Research*, Vol. 16 No. 1, pp. 122-49.
- Otley, D.T. and Berry, A.J. (1980), "Control, organisation and accounting", *Accounting, Organizations and Society*, Vol. 5 No. 2, pp. 231-46.
- Schiff, M. and Lewin, A.Y. (1968), "Where traditional budgeting fails", *Financial Executive*, Vol. 35 No. 5, pp. 50-62.
- Silverman, D. (1985), *Qualitative Methodology and Sociology*, Gower, Aldershot.
- Stevens, D.E. (2002), "The effects of reputation and ethics on budgetary slack", *Journal of Management Accounting Research*, Vol. 14 No. 1, pp. 153-71.
- Van der Stede, W.A. (2000), "The relationship between two consequences of budgetary controls: budget slack creation and managerial short-term orientation", *Accounting, Organizations and Society*, Vol. 25 No. 6, pp. 609-22.
- Waller, W.S. (1987), "Slack in participative budgeting: the joint effect of a truth-inducing pay scheme and risk preferences", *Accounting, Organizations and Society*, Vol. 13 No. 1, pp. 87-98.
- Yin, R.K. (1994), *Case Study Research: Design and Methods*, Sage, Newbury Park, CA.
- Young, S.M. (1985), "Participative budgeting: the effects of risk aversion and asymmetric information on budgetary slack", *Journal of Accounting Research*, Vol. 23 No. 2, pp. 829-42.

Appendix 1. Guided interview questions

Budget participation

- Do departmental manager receive goals from top management to guide the budget-setting process?
- Do departmental managers work with their superiors in preparing their budgets?
- Do superiors listen to department manager's ideas about the budget-setting process?

- Does the new budget include changes that the department manager has suggested?
- Should departmental managers be satisfied with the final budget?

Information asymmetry

- Can departmental managers with some experience and knowledge set performance targets for their department just as they want?
- Are departmental managers able to obtain lower budget performance standards using the information about their department which is not accessible by their superior?
- Are departmental managers able to obtain excess resources for their department using the information about their department which is not accessible by their superior?
- Does private information benefit departmental managers as a power resource?

Budget emphasis

- Are departmental managers more likely to receive thanks and gratitude from their superiors when they attain their budgets?
- Do departmental managers receive a promotion more quickly when they attain their budgets?
- Is the budget performance of departmental managers considered an important factor in advancing their career?
- Do departmental managers get rewards more quickly when they attain their budgets?
- Will departmental managers receive a tighter budget in the next period when they attain their budget?

Propensity to create slack

- Do departmental managers submit a budget that can safely be attained?
- Do departmental manager sets two levels of budgets: one between himself and his subordinates and another between himself and his superior?
- Is slack in a budget good to do things that cannot be officially approved?
- Are superiors in good business times willing to accept a reasonable level of slack in their budget?

Supplementary questions

- Could you comment on the following in terms of the budget-setting process:
 - Superior's experience.
 - Ethics.
 - Personal reputation.
 - How slack is viewed in the organization.

Job title	Code	Age	Years of experience in organisation	Years in present position	Performance evaluated by
Sales specialist	S1	26	3	3	Revenue
Sales specialist	S2	29	4	4	Revenue
Sales specialist	S3	25	2	2	Revenue
Sales specialist	S4	32	7	7	Revenue
Sales department manager	SDM	39	9	4	Revenue
Director sales manager	DSM	45	16	5	Revenue
General manager	GM	53	23	7	Revenue and expense
Chairman B.O.D (company C)	Chair	59	35	3	Revenue and expense
Budget general manager (parent company E)	BGM	54	25	7	Revenue and expense

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Table AI.
Participant profiles

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