

Evolution of Management Control Systems in Leveraged Buyouts

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Abstract

The paper studies those management control systems (MCS) that mediate the relationship between buyout sponsors (e.g., private equity, venture capital firms) and their portfolio companies. Buyouts normally have a life cycle that extends from deal structuring, changes in company management practice, and then, finally, harvesting investment. Underlying these phases of investment is the application of management control systems (MCS) that reflects the buyout sponsors' concern for creating a re-vitalized focus on performance. We conducted an empirical study to trace the evolution of performance-induced MCS in the UK and Continental European leveraged buyout companies. Our results show that, to facilitate decision-making and align owner-manager interests, buyout companies establish various control mechanisms, including input controls, behavior controls and output controls. The choice among these three types is positively associated with the particular strategic context of a buyout. Companies emphasizing cost leadership tend to choose output controls while firms following a differentiation strategy are more likely to implement behavior controls. In implementing these strategies and the associated MCS, buyout sponsors' board members play a crucial role. MCS are also linked to superior firm performance, measured as growth in revenues, as well as buyout sponsors' exit from their investment.

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Firms use management control systems (MCS) to direct, support and motivate individuals to perform their specific organizational roles. MCS thus handle a great amount of diverse information, variously taking the form of rules, routines, documentation and formalized structures (Child & Mansfield, 1972). As firms face new competitive market challenges, demands on their control and coordination mechanisms also grow, resulting in some instances in control loss (Williamson, 1971) and an inability to cope effectively with increasing information needs. Firms may respond to these failures by engaging in a process of change, modification and revamping of their existing MCS, especially in instances such as when a major re-organization occurs.

Past studies on MCS have overwhelmingly investigated the nature of control systems in stable organizational environments, especially the systems that deal with processes designed to optimize organizational efficiency (e.g., Ouchi 1979, 1980). For example, controls and how they affect an organization's task environment appear in both classic (e.g., Cyert & March, 1963; Perrow, 1970; Thompson, 1967) and more recent works (e.g., Cardinal, 2001; Kirsch, 1996, 1997; Sitkin et al., 1994; Makhija & Ganesh 1997). These studies cover a vast terrain, incorporating a large number of variables relating to organization structure and process. Yet, in this research program, there is barely an investigation of the evolution of organizational controls, as its main focus is on developing static typologies of control systems and their various sets of interlinked elements.

Recently, researchers in both organization science and management accounting have departed from this tradition and looked at the influence of control mechanisms in emerging organizations (Cardinal, et al., 2004; Turner & Makhija, 2006; Sandino, 2007; Davila, et al., 2009). This body of work attempts to classify patterns in MCS such as how formal rules will evolve over time in start-ups and small emerging organizations. The research also investigates changes in the configuration of controls, and their various sets of attendant drivers (Cardinal, et al., 2004).

A related issue is the importance of balance in MCS, in particular how organizations achieve a balanced control system (Cardinal, et al., 2004). One example is how organizations may adopt a more informal control system approach when formal controls have become overbearing (Sitkin & Bies, 1994).

The present study focuses on a different set of organizations. It researches the evolution of MCS in mature organizations with large restructuring programs. This setting is provided by leveraged buyouts (LBO). LBO is a form of investor activism of public firms that have incurred agency costs beyond an optimal point (Kaplan, 1989; Jensen, 1989). LBO are also associated with organizational change and development, both in the way a buyout firm's strategic and organizational context changes and how these changes influence its control systems requirements (Cornelli & Karakas, 2008; Cumming et al., 2007; Kaplan & Strömberg, 2009). For example, most LBO vigorously implement a cost cutting strategy as soon as a new management team is put in place. This inward focus dramatically shifts to an outward focus when buyout sponsors are nearer the exit from their investment, mirroring the need for a more diversified product market strategyⁱ. Such an environment lends itself especially well to the study of how MCS are scrapped, revised or re-established within a mature organization (Otley, 1999). As Simons (1995) argues MCS are adopted in the event of a breakdown in processes such as a failure to meet deadlines or quality problems. It is likely that buyout firms actively use MCS to ameliorate organizational failures that characterize pre-buyout firms.

LBO also provide an opportunity to study the presumed association between strategy and MCS. Prior studies investigating the link between strategy and MCS either focus on the relationship between general strategic context of a firm and how it influences its control structures such as cause-effect knowledge and standards of desirable performance (Hill & Hoskisson, 1987; Langfield-Smith, 1997; Dent, 1990) or examine aspects of a firm's operational strategic contexts such as business-unit level product-market variation, work flow integration and

organizational size (Govindarajan & Fisher, 1990; Snell, 1992). As such, these studies do not examine specific firm strategies and their relationships with MCS. The present study fills this gap by conducting empirical tests that delineate the various strategic effects on the evolution of MCS. Assuming control systems reflecting a multitude of activities that organizations engage in, we study how control systems evolve as organizations restructure their production or service-related activities. We also investigate the impact of MCS on buyout firm performance. These questions are addressed by analyzing both qualitative and quantitative data related to the choice of MCS by a sample of buyout firms.

The paper is organized as follows. The first section surveys the relevant literature. It is followed by our discussion of the study design and identification of research variables. In the next section, we present our results. The final section concludes with suggestions for future research.

MANAGEMENT CONTROL SYSTEMS

Management control systems are information based decision support mechanisms, exhibiting formalized and recurrent structures. As a subset of organizational routines (Nelson & Winter, 1982), they help managers leverage their attention to diagnose ‘errors’ and evaluate key decisions in the management of personnel and resources (Simons, 1987). MCS thus possess information processing properties that determine the future direction of firm growth and provide a roadmap for controlled and consistent performance (Egeihoff, 1982; Grant, 1996; Nelson & Winter, 1982; Ouchi, 1979; Tushman & Nadler, 1986).

Extant literature classifies the control systems in many different ways, chief among them is a distinction between output control and behavior control. In this respect, classical organization theory, as evidenced in the works of Ouchi (1979) and Eisenhardt (1985), and

principal-agent models (Demski & Feltham, 1978) have an uncanny resemblance in viewing output control and behavior control as two alternative control approaches. Output control are the use of end results for assessing a manager's performance. In contrast, behavior control are the monitoring of a manager's actions that are expected to conform with standards set out in work guidelines. Literature sometimes views resource allocation processes within the organization such as employee selection and training as input control (Ouchi 1979; Davila, 2005). Based on these attributes of control systems, one can easily identify antecedent conditions of organizational outcomes and performance. For example, output control are more appropriate when it is difficult to monitor a manager's actions or decision choices (Eisenhardt, 1985; Ouchi, 1977, 1979). This is particularly the case when the separation of ownership and control results in agency costs, which can be reduced by designing an appropriate monitoring and control system (Demski & Feltham, 1978). The principal may write a performance contract with the agent contingent on a set of financial and non-financial information about the agent's performance. Companies may then use these controls to help align the interests of the agent with the goals of the principal.

Behavior control are relevant when it is difficult to measure outcomes or when they are less reliable as indicators of a manager's 'true' performance. In such situations, control systems facilitate the decision-making process by helping managers to update their beliefs about the choices they make and the consequence they receive. A particular factor that may increase or decrease the difficulty of outcome measurement is firm strategy (Chandler, 1962). When strategic contexts are narrowly defined, a low level of variation in performance occurs that may result in internally focused and constrained information processing (Thomas & McDaniel, 1990). Companies may thus monitor and inspect operations without confronting serious problems of information asymmetry. However, when strategic contexts are wide, information-processing

capacities of a control system are likely to be broad and externally focused (Thomas & McDaniel, 1990).

LBO and Control

Buyouts are structured to provide significant equity incentives to the entrepreneurs, together with substantial external funding and active monitoring by investors (Jensen, 1993; Wright et al., 1994). Buyouts occur with a varying degree of debt-equity ratios but a major part of leveraged buyouts is the use of substantial debt for controlling the company. Early research on LBO viewed the buyout of public firms as a means to reducing significant agency costs in the form of free cash flows (Halpern et al., 1999; Fox & Marcus, 1992; Smith, 1990; Jensen, 1989). As managers' and shareholders' interests are not fully aligned, managers sit on huge piles of free cash flow and use them as a means of protection against downside risk. An LBO curtails this inefficient use of firm resources and diverts free cash flows toward debt repayment. LBO also represent higher share of insider equity that creates incentives for value maximization through its effect on the alignment of interests between shareholders and managers.

LBO in the 1980s and 1990s were mainly aimed at providing efficiency incentives as most buyouts took place in mature and stagnating businesses (Jensen, 1989; Kaplan, 1989; Phan & Hill, 1995). While still maintaining this interest in mature industries, recent waves of LBO are more likely to be found in growth and emerging industries (Kaplan, 2007; Cumming et al., 2007). As a result, it is sometimes argued that LBO act as a vehicle for entrepreneurial initiative (Bruining & Wright, 2002) and promote technological innovation and growth (Kaplan & Strömberg, 2009).

Regardless of the motive for taking a company private, LBO create a juncture at which there is an opportunity to reconsider the strategy of a firm and streamline its bureaucratic

systems. Buyouts may initially be concerned with enhancing efficiency and protecting the firm against downside risks but the subsequent changes can be far-reaching and may encompass all aspects of company management (Katz, 2009; Bruining & Wright, 2002; Jones, 1992). From improvements in the quality of information to introducing equity-based incentives through to spelling out clear basis for performance measurement can all be part of this change program. To support such programs of restructuring, information systems relating to decision-making may be augmented to introduce greater importance and formality to the firm's control process. For example, frequency of financial reporting may increase from annual, bi-annual and quarterly before buyout to monthly reporting thereafter. Similarly, annual headcount reports may be supplemented by bi-annual reports with capital expenditure reports developed and used on annual, bi-annual and quarterly basis. In addition, key performance targets may be revised with increased emphasis on performance measurement. This is based on the assumption that a re-organization of the firm's performance management and evaluation systems is warranted so as to achieve deep-seated changes in operations. The objective invariably is to help bring the company back into profits.

Control and Strategy

Traditionally, buyout sponsors are concerned with streamlining the operations of their portfolio companies to meet performance challenges (Kaplan, 1989, 1991). To bring management and production systems into alignment with efficient cost structures, the sponsors may take steps such as (1) employing people with high levels of experience and practicing all possible economies of scale; (2) producing a standard, undifferentiated product; and (3) giving employees targeted incentives. These strategies are underpinned by a standardized production system, requiring the performance of a routinized set of tasks. In the lexicon of organizational control theory, when

production can be defined in terms of routines and repetitive procedures, the knowledge of ends and means is high, implying high task programmability (Eisenhardt, 1985). Output control and input control across multiple levels of the firm may then be implemented to secure buyout company manager compliance and monitoring (Baron et al., 1996). However, when product-market variations are greater, the degree of breadth and change in a firm's products or markets is also high (Snow & Hrebiniak, 1980), putting increasing demands on the information-processing capabilities of the firm (Egeihoff, 1982). There will then be a need for behavior control and input control in structuring the firm's operations. A buyout is likely to experience these changes when the sponsors seek to prepare their portfolio companies for sale. An investment will exit at a favorable condition if the company's revenue stream is stable and based on better variety products.

Therefore, a buyout's approach toward output control versus behavior control will vary in relation to changes in its particular strategic context. A buyout will tend to implement output control at the initial stages of its development, especially when cost controls are important; however, its focus will shift toward behavior control when it expands its product market scope. Fig 1 depicts this process.

Fig 1 about here.

Given the focus on cost reduction and revenue growth at two different stages of a buyout's development, Porter's (1980) strategy framework can be used to construct relevant strategy parameters (Sandino, 2007). Porter (1980) views strategy in terms of a trade-off between cost leadership and product differentiation. Strategy trade-offs are generally about identifying company goals on a continuum between companies following a 'cost leader' or 'defender' strategy and those following a 'growth-oriented' or 'differentiation' strategy (Miles & Snow,

1978). In the present context, characteristics of a company with a low-cost product strategy match those of a buyout firm's traditional restructuring program while a product differentiation strategy is linked to a buyout sponsor's need to exit its investment. As a result, firms following a strategy of cost leadership are likely to use MCS related to cost controls, operating targets and output measures, while firms following differentiation strategies may adopt structures and processes that target individual responsiveness to changes in the environment (Langfield-Smith, 1997; Simons, 1987; Porter, 1980)ⁱⁱ.

The above discussion of MCS in leveraged buyouts leads us to formulate the following specific hypotheses:

Hypothesis 1: Buyout firms will implement MCS to reduce agency costs and provide support for decision-making.

Hypothesis 2a: Buyout firms following low cost strategies will introduce MCS concerned with controlling costs and streamlining operations.

Hypothesis 2b: Buyout firms following differentiation strategies will introduce MCS concerned with product development and revenue growth.

STUDY DESIGN

We examine the evolution of MCS in 118 UK and Continental European-based buyout companies (see Table 1). Our strategy to investigate the study's research questions is based on a multi-method, multi-case field research design. Researchers have found the multi-method research design useful in settings where both quantitative and qualitative information are required (Jick, 1979). As well as facilitating triangulation, qualitative information can be used to help interpret the survey data. The following criteria were used to build our sample of buyout companies. At the time of sampling (April and June 2008), companies (i) had a minimum of 50

employees, (2) were more than ten years old, and (3) 60 percent or more debt was used in the buyout transaction. As discussed above, LBO provide debt discipline to curtail agency costs. However, debt leverage used by private equity sponsors has steadily declined after the heady days of buyouts of the 1980s (Jin & Wang, 2002; Kaplan, 2007).ⁱⁱⁱ Our interviewees suggested that there had been an upward movement again in leveraged finance for buyout deals post-2000 when the sponsors faced improved financial conditions; but, for the sake of consistency, we selected buyout firms with a minimum debt component of 60 percent.

Table 1 about here.

We did not want to study small companies (<50) because, as our discussion of MCS implies, formal control systems emerge in response to an increase in firm size. Once admitted into our sample, we go back to the genesis of these companies and track the build up of MCS from the buyout date to the time of study. The buyout date was obtained from the CORFIN dataset. Because information about company MCS is not readily available from public sources, it was necessary to develop our own research instruments for the study's purposes. As a first step we built a profile of each company by collecting information from company web pages and press releases from EBSCO and Lexis-Nexis. From these sources we had enough information about company products, key personnel and company history of mergers and acquisitions.

Exploratory interviews with fourteen buyout professionals was the next step we took to develop an initial categorization of MCS in buyout firms. Subsequently, using questionnaires and semi-structured interviews we obtained information about our key research variables, including information on the firm's strategy and any major changes in the strategy since the firm's buyout. Moreover, we obtained an account of the firm's MCS with details about which MCS were introduced at various stages of the buyout and if they were still in use at the time of the

interview. In most cases, the questionnaire was completed in face-to-face interviews with either the CEO or the human resource (HR) manager. We also conducted interviews with each company's chief financial officer (CFO) and the marketing/product development manager. The semi-structured interviews with each of these four managers generally lasted about an hour, and were used to obtain information about the interviewee's experience with MCS, from initial design through implementation. There are certain limitations of the interview method such as respondents' bias regarding 'acceptable practices' or they may be subject to recall bias (Seidman, 1998). To mitigate this limitation, we asked about various dimensions of a particular variable, and contrasted their responses to other available information. We obtained financial information from Orbis (FAME), which is a rich source of information about both public and private companies. Our study design thus enabled us to gather a large enough variation to examine our study's hypotheses.

Identification of Variables

Organization and incentives literature stresses several important reasons for the adoption of management control systems, including agency cost, cost-benefit trajectory of decision support systems, strategy and size (Davila, et al., 2009). In the following, we develop specific variables that are used to examine the extent of variation in the types of MCS adopted by buyout firms.

Board. As a buyout aims to improve company performance by aligning owner-manager interests, changes in corporate management will be necessary to strengthen the organization's traditional monitoring function. Due to agency problems, there are severe monitoring inadequacies in boards of public firms that cause buyout sponsors to replace passive outsiders with active investors (Jensen, 1989). Buyout sponsors may sit on LBO firm boards, and since these sponsors often hold majority equity shares in LBO, they are likely to exercise considerable

influence over company managers (Holthausen & Larcker, 1996; Kaplan, 1991). Evidence shows that LBO boards are structured to yield strong returns to investors and thus they represent “value-maximizing” boards (Cornelli & Karakas, 2008; Gertner & Kaplan, 1996). To measure the impact of investor involvement in MCS adoption, we examine whether buyout investors are part of the company’s board of directors (when board does not exist we ask if the buyout sponsor has appointed a specialist person to specifically deal with a portfolio company). Board membership (*BOARD*) is a dummy variable updated yearly that takes the value of one if the buyout company has the sponsor’s board member and zero otherwise.

Buyout Managers. Literature on MCS in mature organizations frames the adoption question in terms of the costs and benefits of adding an additional layer of control to support decision-making. It is argued that companies with more complex operations will adopt control systems that have a more favorable cost-benefit relationship (Baiman, 1982) - it is time-consuming and costly to install and operate MCS. These costs are related to both the direct, short-term expenditure incurred in developing firm MCS, but also the indirect, long-term costs associated with unsuitable MCS. Given these considerations, one factor that is likely to influence the MCS adoption/modification decision is the recruitment of professionals in areas directly linked to control operations.

When buyout sponsors acquire a new business, they normally appoint top management team from outside the firm. It gives company management a break from the past but also a mandate to build up the scale of the enterprise that had been underperforming. Buyout companies are also driven by the specific management objective of turning around the business, which means that they are under significant pressure to improve performance. Simons (1994) finds in his case study research of change organizations that new managers follow a dual strategy of (1) hiring consultants to design and implement new diagnostic control systems, and (2) recruiting a new chief financial officer to oversee the monitoring of critical performance

variables (see also Gabarro, 1987). Similar effects are likely to be observed in buyout organizations, and we, therefore, evaluate the impacts of new CEO, CFO, HR Manager and Marketing/Business Development Manager on the adoption of MCS. It is likely that these managers, having a functional background, are motivated to execute operational changes that reflect their own professional outlook, including the adoption of MCS as decision support systems.

New CEO (*CEO*) is a dummy variable updated every year that takes the value of one if a new CEO has replaced the incumbent CEO, and zero otherwise. The presence of a full-time CFO is a time-varying variable that takes the value of one for those years in which the company had a full-time finance manager, and zero otherwise. Likewise, a full-time HR Manager (*HR MANAGER*) is a time-varying variable that takes the value of one for those years in which the company had a full-time HR manager, and zero otherwise. We used a similar variable for Marketing / Business Development Manager: a full-time Marketing / Business Development Manager (*BD MANAGER*) is a time-varying variable that takes the value of one for those years in which the company had a full-time marketing manager, and zero otherwise. The information about the date in which a particular officer was hired was gathered from the CEO/HR Manager questionnaire. This information was triangulated during the interview when the interviewee was asked to describe the relevant functional history of the company.

Strategy. Extant research identifies business strategy as a relevant key factor in explaining cross-sectional variation in the design and implementation of MCS (Kober et al., 2000; Langfield-Smith, 1997). Chandler (1962) observes that the strategic posture of a firm affects the absorption level of its administrative information. To capture the impact of firm strategy on MCS adoption, we use two variables; cost leadership and differentiation.

COSTLEADERSHIP is a composite measure that proxies for the firm's cost leadership strategy. It is a principal component measure that captures 73 percent of the variation in two

questions: (1) the extent to which the firm places emphasis on lower prices as a way to maintain its market position, and (2) the extent to which the firm directs its operations toward controlling cost and offering low priced goods. Using a Likert scale, these questions place higher values on strategies emphasizing cost efficiency targets - 7 - and lower values for firms indifferent to cost restructuring -1.

DIFFERENTIATION is a composite measure that proxies for the firm's differentiation strategy. It is a principal component measure that captures 66 percent of the variation in two questions: (1) the extent to which the firm emphasizes product differentiation as a way to extend its market reach, and (2) the extent to which the firm emphasizes knowledge growth and capability improvement in its revenue-enhancing operations. Using a Likert scale, these questions place higher values on strategies emphasizing high product differentiation - 7 - and lower values for firms indifferent to product improvements -1.

Size. Informal contact among employees is the basis on which control and coordination occur in relatively small organizational environments. These settings are mostly related to the early developmental stages of a company, initiation of a new project or small-scale enterprises. With the number of employees increasing, however, it becomes necessary to develop a more formalized system of operations that anchor informal contact and communication around a set of fully written down and prescribed systems of governance. Controlling and coordinating large number of personal interactions inevitably increase the cost of governance (Lorsch & Morse, 1974). As personal interactions increase disproportionately, the ability of the system to cope well is also at risk. Merchant (1985) thus argues that with size the efficiency of an informal control approach rapidly decreases. We measure firm size (*SIZE*) as the natural logarithm of the number of employees working at the end of each year (The logarithmic transformation was used to reduce positive skew.)

It is expected that subsidiary firms, who often are targets of public to private LBO transactions, will use MCS more intensely, given their experience of such systems. *SUBSIDIARY* is a dummy variable that indicates whether the LBO was subsidiary of a public firm (1) or not (0). The study also controls for industry. This variable may capture some of the differences across firms in terms of their external (Gordon & Narayanan, 1984) or product market environments (Brownell & Merchant, 1990; Hambrick, 1983). If the arguments that explain variation among MCS in well-established firms are relevant to change environments such as a buyout, then controlling for industrial sectors may enhance the power of the research design. For example, firms with more structured operations like product assembly may adopt output controls sooner because assembly tasks are more amenable to explicit coding compared to less structured operations like product development. Five industries are coded using dummy variables: manufacturing, trade, telecommunications, health and education, and IT industry. To study the impact of MCS on company performance, we use revenue growth and exit variables including IPO rate (percentage of portfolio companies sold via IPO), Trade Sale rate (percentage of portfolio companies sold via Trade Sale); and Dollar IPO rate (percentage of invested \$ exited via IPO), and Dollar Trade Sale rate (percentage of invested \$ exited via Trade Sale)^{iv}.

Management Control Systems. We draw on previous research (Kerr, 1985; Anthony, 1965; Miles & Snow, 1978; Ouchi, 1977, 1979; Baron et al., 1996), as well as our interviews with buyout managers to identify buyout-specific management control systems. By focusing on three control systems (i.e., input control, output control and behavior control), we obtained information on the different dimensions of information along which MCS differ in buyout companies (see Appendix I for details). We identified three basic purposes (or dimensions) of MCS from these interviews: (i) to develop human capital, i.e., to provide support for buyout specific human resource policies, to implement rigorous staffing procedures, and to provide opportunity for employee training and development; (ii) to enhance revenue, i.e., to understand

changes in a buyout's external environment, to analyze external information, to facilitate growth and development, and to implement revenue-enhancing measures such as work processes relating to new product development or innovations or refinements in existing product varieties; and (iii) to minimize cost, i.e., to achieve consistent performance levels in a buyout by constantly setting targets and comparing actual performance against these targets and to measure performance and provide rewards that are based on the results achieved.

These purposes are relevant as our interviewees' perceptions of MCS were based on how control systems conveyed a specific type of information, rather than how they achieved a particular operational goal (e.g., the extent to which specific performance targets were used to control costs). This is consistent with the economic theories of performance measurement, where performance metrics are judged in terms of their level of informativeness (Holmstrom, 1979; Ittner & Larcker, 2002). Given the information we had about the three main purposes of MCS, we then asked respondents to rate on a scale the 25 individual control systems as they were used in their control processes. By using multiple respondents we ensured interrater reliability (the measure reliability was 0.66 ($p < 0.001$)). To confirm control measure dimensionality empirically, a principal components factor analysis with varimax rotation was conducted to assess convergence within and divergence between scales. We derived from this analysis three stable factors representing input, behavior, and output control, each having an eigenvalue greater than 1.0 and together accounting for 52 percent of variance in the data.

Evolution of MCS

We first report the percentage take up of each of the three individual control systems by the end of Year 1 through Year 5. This is presented in Fig 2 Panel A. One can glean several patterns from this information as the rate of adoption varies sizably across the sample. Output control

emerge as the most widely adopted systems in Year 1 and Year 2 across the sample of firms. Behavior control and input control are not given that much weight in these first two years as the adoption of these systems is much slower than the output control systems. This trend changes in Year 3 and 4 however with the increasing adoption of behavior control and input control. Fig 2 Panel B plots the evolution of MCS systems by headcount (less than 75 employees, between 75 and 150, between 150 and 250, between 250 and 500, and more than 500 employees). There is initially a rapid build up of the MCS systems until the size reaches 150 employees, and then again between sizes 250 and 500. Companies in these size categories introduce an assortment of new systems (or significantly revise them), alternating an emphasis first on output control and then on behavior control.

Fig 2 about here.

Our sample of companies contains 27 management buyouts. A management buyout involves members of the incumbent management team acquiring control of the company with a significant equity stake (Robbie & Wright, 1996). As such, there is greater incentive for the MBO managers to achieve performance targets as owner managers are likely to draw on control mechanisms extensively to ensure implementation of new or revised growth targets. However, this prediction does not bear out in our data. Fig 3 presents information for both non-management buyouts (Panel A) and management buyouts (Panel B). The implementation of the MCS in both sets of sampled firms does not vary significantly.

Fig 3 about here.

Descriptive Statistics

Descriptive statistics are provided in Table 2 Panel A. Except size, all other variables increase over time (Panel A). In the first two years, size decreases; however, this trend changes in the following three years, a pattern conforming to buyout company strategies. To cut costs, buyouts drastically slash a number of company operations, reducing their labor requirements. At later stages, when buyout sponsors start looking toward their exit and thrust the firms into exploring new growth opportunities they start re-employing labor and, as a result, their size also begins to increase. Firms with a buyout sponsor's representative on the board grow over time. Also those firms grow where incumbent CEOs have been replaced. As the timeline of MCS adoption suggests, most of the individual control systems introduced early are internal and relate to operations, while individual control systems used to learn about the market and to scan external information are introduced later. Finally, Panel B presents the correlation of the company year observations in a selected number of categories.

Table 2 about here.

MCS Adoption

We measure the adoption of MCS in terms of the time it takes to introduce the system. The time we take into account is the period from the company's buyout to the date of adoption of the system and count the number of systems adopted per company in total and within each of MCS at the end of each year. Because our data is of discrete in nature, we use the Poisson regression model (Greene, 2000) to estimate the probability of observing a certain number of management control systems adopted at a point in time. It is defined as follows:

$$\Pr(Y_i = y) = \frac{e^{-\sum_j \beta_j * x_j} * (\sum_j \beta_j * x_j)^y}{y!},$$

where $y = 0, 1, 2, 3, \dots$ is the number of systems adopted, x_j are the independent variables, and β_j are the coefficients for the independent variables. A coefficient on an independent variable greater (less) than 1 indicates that the explanatory variable increases (decreases) the probability of control system adoption. All variables are updated every year. The Poisson regression also controls for potential autocorrelation of error terms for observations from the same firm. We expect that agency costs, as proxied by a buyout sponsor's board membership, will be associated with a large number of systems adopted. Similar associations are expected for the perceived benefits and costs of introducing MCS, as proxied by the appointment of professional staff and a new CEO ; company size, as proxied by employee headcount and whether the LBO was a subsidiary. In line with our earlier discussion, we expect the two strategy variables to be related to different sub-systems of MCS.

Table 3 about here.

Table 3 presents our results in the form of incidence rate ratios (e^{β}). As expected, the strongest results are about a buyout firm's need for developing relevant decision support systems and agency costs. In the event of a takeover, the buyout firm board is usually restructured to reflect the interests of new investor owners. In our results, board member has a significant positive impact at the overall MCS level, as well as at the levels of input control, behavior control and output control. Board members are likely to play a key role in focusing management attention toward specific restructuring goals, an important part of which is the taking up of

relevant control systems. The replacement of the incumbent by a new CEO also has significant and positive effects in every specification save output control. As output control are mostly levied at the behest of the buyout sponsors as soon as company changes hand, a new CEO will likely have less influence over the introduction of such systems. On the other hand, input control and behavior control are developed over the life of a buyout giving a new CEO an ample opportunity to shape the design and nature of the control process.

Company size explains in large measure the decision to adopt behavior control systems as there is a statistically significant association between employee headcount, our proxy for company size, and behavior control. Interestingly, size is not significant in output control model, which underlines the fact that considerations for the adoption of such systems in a buyout are largely divorced from actual employee numbers. The coefficients of professional staff (i.e., HR Manager, CFO, BD Manager) are positive and significant in all MCS specifications, indicating that the appointment of professional staff encourages the company to take up a larger number of MCS. This is also consistent with the idea that the adoption of control systems in a firm is given boost by the availability of expert help. For example, knowledge of input control may form part of the professional toolkit of a human resource manager; thus, in hiring this person, companies are benefiting from his/her expertise in input control related measures.

We find that cost leadership is positively and significantly associated with output control, confirming the view that performance measurement emphasizing concrete performance targets registers heavily in a buyout's plan to cut costs in its initial phases of development. On the other hand, differentiation strategy has a significant and positive association with the behavior control and input control systems. These results suggest that different buyout strategies imply different control approaches: when buyouts adopt an internally focused approach, efficiency management and cost control become a priority. In contrast, when product-market variations are greater then behavior control become a central concern. As behavior control tolerate, if not encourage,

experimentation and creativity, buyouts can aim to extend their market reach by focusing on growth and developing new product lines. In our results, subsidiary is significant in output control regression, whereas its relationships with behavior control and input control are statistically weak.

Overall, the evidence is consistent with the explanatory variables having significant effects on the adoption of MCS. Buyouts utilize all MCS intensely, although there may be important variations in the way different MCS subsystems are operated in relation to different strategy challenges. The effects of subsidiary, size and new CEO are the only variables where our conclusions are not robust across all specifications.

MCS Adoption and Buyout Performance

Organization theory predicts that as monitoring costs increase the need for formal control systems intensifies (Eisenhardt, 1985; Ouchi, 1977). Firm adoption of MCS ensures that the organizational efforts are fully directed toward achieving target levels of performance^v. Similarly, buyout organizations implement a set of MCS, as identified in the previous section, that helps achieve better control and monitoring. The question we want to address in this section is whether the adoption of these control systems or performance-induced MCS has any effect on company performance as well. Buyout sponsors have a financial claim on the company and as such they are interested in the financial success of the enterprise. Hellmann & Puri (2002) finds that the presence of professional funding in the company's financial structure explains significant variation in the level of professional management in venture-backed firms. Buyout sponsors are also likely to encourage their portfolio companies to restructure their operations so as to achieve improved performance. Such a strategy will lead to their exit within a specified timeframe, thus

enabling the sponsors to close their funds and return capital to their investors as per contractual terms (Kaplan, 1991)^{vi}. We therefore examine the following hypothesis:

Hypothesis 3: Buyout firms with performance-induced MCS will experience superior performance.

Past studies on MCS have usually modelled adoption of MCS in relation to growth in employees. This is based on the assumption that as the number of employees increases firm demand for formal control systems also increases. However, in the present case, such a measure will give a distorted picture of the effect of employee size, as buyouts generally reduce employment as part of their restructuring programs. We therefore use growth in revenues and buyout sponsors' exit from their investment as indicators of the positive effects of MCS adoption on company performance. The analysis presented here is of an association kind and does not establish causality.

We use two types of exit strategies, IPO (initial public offering) and Trade Sale, as proxies for buyout performance. Management control systems we use are input control (InputMCS), behavior control (BehaviorMCS) and output control (OutputMCS) as implemented at the time of investigation. Information about these measures, including revenue growth, was obtained through the questionnaire survey as discussed above.

We control for buyout sponsor's board member, new CEO, Size, HR Manager, CFO, Marketing / Product Development Manager, Cost Leadership, Differentiation, and Subsidiary. We estimate the following equation.

$$\text{Performance} = \alpha + \beta^* \text{InputMCS} + \beta^* \text{BehaviorMCS} + \beta^* \text{OutputMCS} + \beta^* \text{Control Variables} + \varepsilon$$

Table 4 provides OLS (Ordinary Least Square) results for the effects of MCS on buyout performance. The dependent variable for the first regression is revenue growth (Column 1). For the second and third regressions, the dependent variable is denoted by EXIT and presents the proportion of all exits done, including exits through an IPO (Column 2) and a Trade Sale (Column 3). EXIT2 (Column 4 and 5) presents the proportion of exits in terms of dollar exit rates.

Table 4 about here.

For both exit options, IPO and Trade Sale, the coefficients for all three control systems are positive and significant, indicating that the adoption of MCS is indeed associated with improved buyout performance. The models' R^2 s range from 0.346 to 0.560 ($p < 0.001$). The relationships between different subsystems of MCS and revenue growth are ambiguous, as the signs are as expected but the coefficients not significant. In addition, the regression model as a whole is not significant, underlining the difficulty in predicting revenue growth. As before, Size, new CEO, Board, CFO, HR Manager, Marketing / Product Development Manager, Cost leadership, Differentiation, Subsidiary and various industry sectors were included in LBO performance regressions. We find that company size, board membership, and new CEO are important as are different categories of professional staff in explaining the variation in performance outcomes. Likewise, strategy variables have significant positive impact on buyout performance. However, the effect of subsidiary on buyout performance is ambiguous, since it has opposite effects for Trade Sale and IPO. It negatively impacts portfolio company exit through Trade Sale but its relationship with IPO is positive. This suggests that a buyout company with a subsidiary background is more suitable for an IPO than a company without this

experience. It is likely that, having previously worked as part of a large organization, a subsidiary is more equipped to dealing with the challenges of going public.

Endogeneity

In our empirical tests, we model the hiring of professional staff (HR manager, CFO, Marketing / Product Development manager) as endogenous decisions. Our results presented in Table 4 show that professional staff have positive effect on buyout firm exit, measured as exit rate as well as dollar exit rate. It has thus been argued that professional staff increase the odds for investment success. However, this analysis does not take into account the possibility that professional staff are valued only when they affect performance. To account for the endogenous relation between professional staff and performance, we also estimate the performance effect of professional staff with two stage least squares (2SLS). Table 5 provides 2SLS results, which confirm that professional staff indeed raise the buyout firm performance. In fact, the results are stronger than the OLS regressions, especially the association between CFO and exit via IPO.

Table 5 about here.

CONCLUSION

MCS enable company managers to take decisions with enhanced information. Extant literature on MCS is largely concerned with understanding the patterns of information processing in mature organizations. By treating MCS as a tool of strategic change, the present study explores the variation in the types of MCS introduced by buyout firms. Specifically, we find that output control are of a particular concern for buyout sponsors in the immediate aftermath of the

company takeover while behavior control appear to be more relevant during periods of buyout expansion involving innovative product market solutions. Our study thus supports the findings of Davila et al. (2009) who in their study of product development systems observe that MCS enhance innovation. Our results also show how the varying nature of the quality of expert administrative support available in a firm as well as agency costs significantly influence the need for management control systems. In our regression results, firm size is not associated with output control, underlining the influence of external factors in the take up of output control. It is important to note that earlier MCS studies found firm size to be of a major contributory factor in the development of MCS in bureaucratic organizations (Chenhall, 2003). The size variable is significant though in behavior control and input control models. This result indicates that as buyout firms lay foundations for growth and development and thus put in place the requisite conditions for investor exit, they rely on input control and behavior control for materializing such objectives. Further evidence for this trend comes from the positive associations we find in our results between behavior control and input control and professional staff.

As we focus on differences in control systems in order to isolate the nature and role of behavior-related and output-related strategic and organizational control contexts, our research approach is designed specifically to understand the information processing capabilities of different control types. However, organizations typically use more than one type of control at a particular point in time, reflecting the need of organizations to engage in a multitude of activities. One remaining question therefore is the quality of different control systems in terms of the interactions they generate among themselves and across the firm's various sets of operations. For example, it is possible that the new MCS are adopted in response to the existing complementarities in the company's operations. The extent to which control systems complement or substitute each other is also linked to the determinants of buyout performance.

Our study emphasizes how buyout sponsors use MCS for creating a re-vitalized focus on performance. Since buyouts experience a great deal of product market variation in a relatively short period of time, it is possible that the temporary capital structure that characterizes a buyout transaction is also linked to the changes in the buyout firm's internal organization. Buyout sponsors may also be more willing to engage with their portfolio companies in the style of venture capital (VC) firms. It is worth noting that VC firms actively provide support and help to their portfolio companies through means such as networking and syndication (Hellmann & Puri, 2002). The extent to which these relational mechanisms of investor engagement are prevalent in buyout organizations, they will also affect the degree to which MCS are valued by these organizations. For example, Katz (2009) finds in her study of PE (private equity) sponsored IPOs that '... firms run by larger PE sponsors with greater capital under management (as a reputational proxy) exhibit better long-term financial and stock price performance when the firm go public. These findings are consistent with *tighter monitoring* by larger PE sponsors with higher ownership stakes (italic added; p. 625).' Our study shows how monitoring and control exercised by buyout sponsors can be evaluated by delineating specific elements of MCS and their interrelationships with organization structure and strategy. How these control mechanisms form part of a wider buyout investor relation milieu can to an extent be understood by referring to the experience of other similar financial intermediaries.

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Fig. 1: Buyout Process and MCS

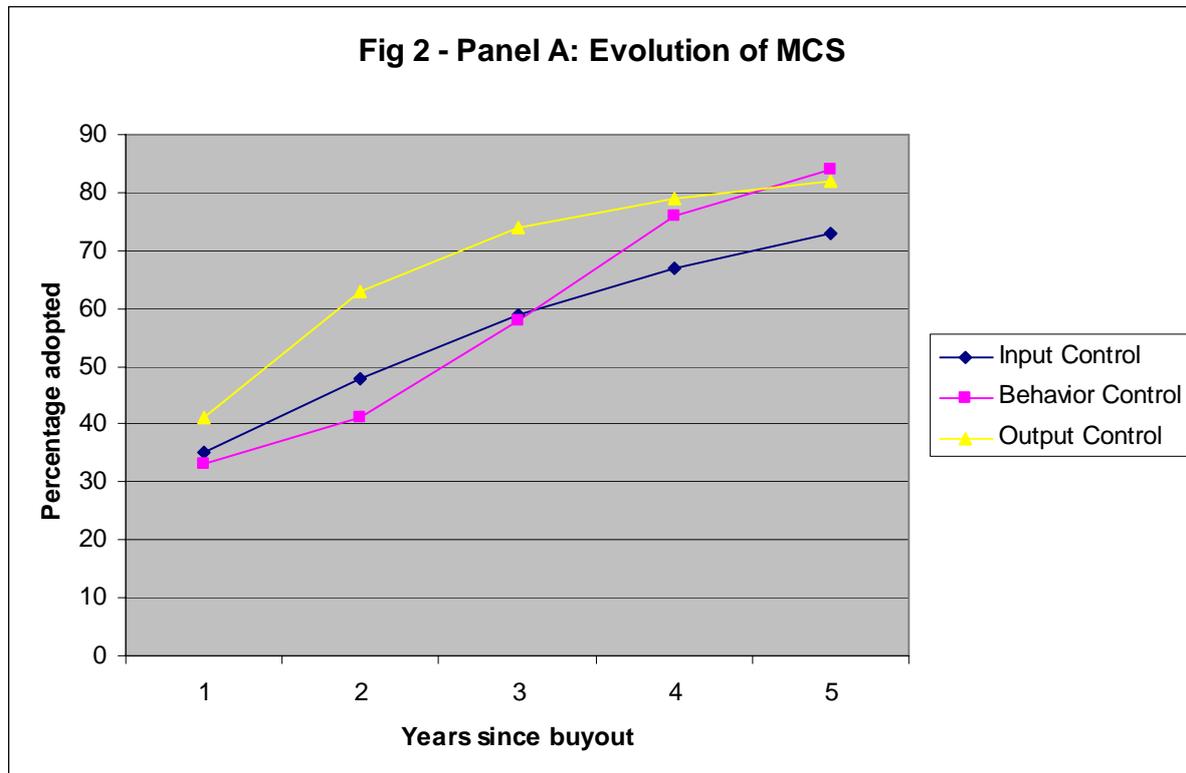


Table 1: Sample Construction

Companies in the initial database	520
Minus	
Companies that went out of business	16
Companies acquired	72
Companies ineligible in some other way ^a	49
Companies that did not respond ^b	138
Companies that declined participation	127
Final sample of companies	118

a: These are companies that are too old, or have trade union problems.

b: These are companies that did not respond at all.



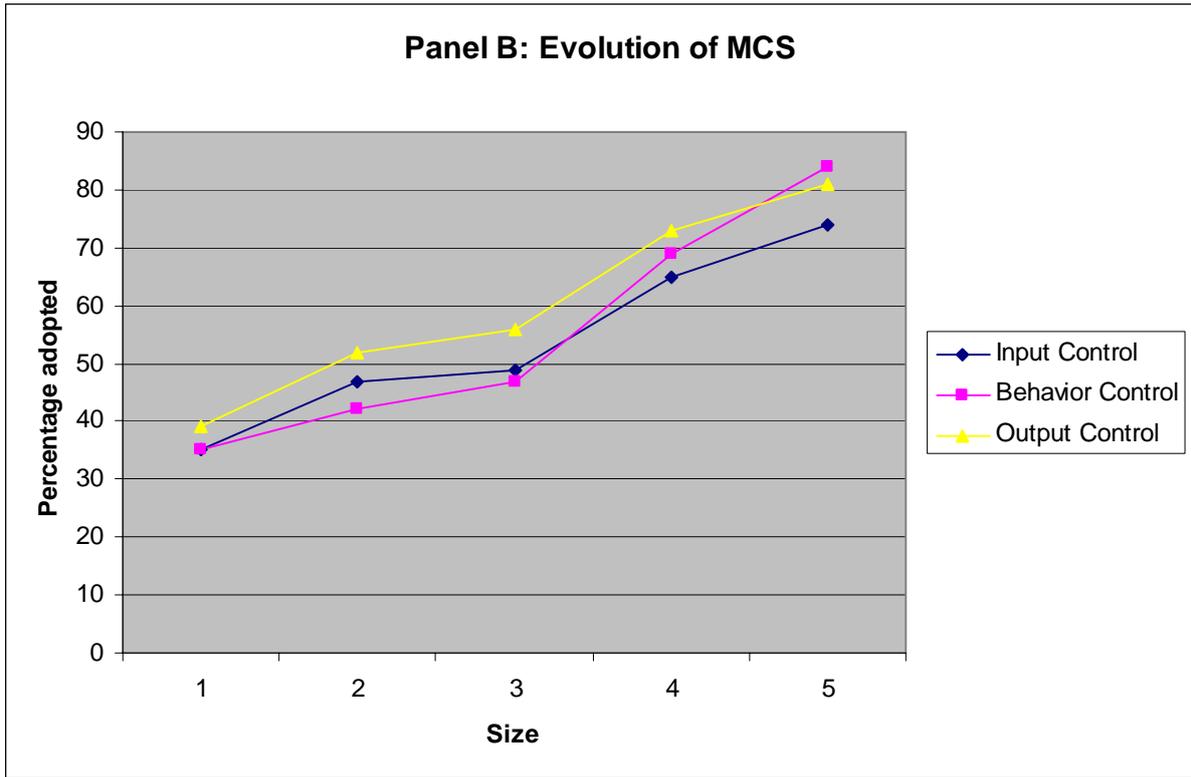


Fig. 2. Adoption of management control systems: Panel A - Management control systems and buyout age (It plots the percentage of companies in the sample that report having adopted a system at the end of each year since buyout); Panel B - Management control systems and buyout size (It plots the distribution of the number of systems adopted per year by headcount across the sample of companies). The size portfolios include the following sizes: <75, (75, 150), (150, 250), (250, 500), >500. They are distributed to have the same number of observations.

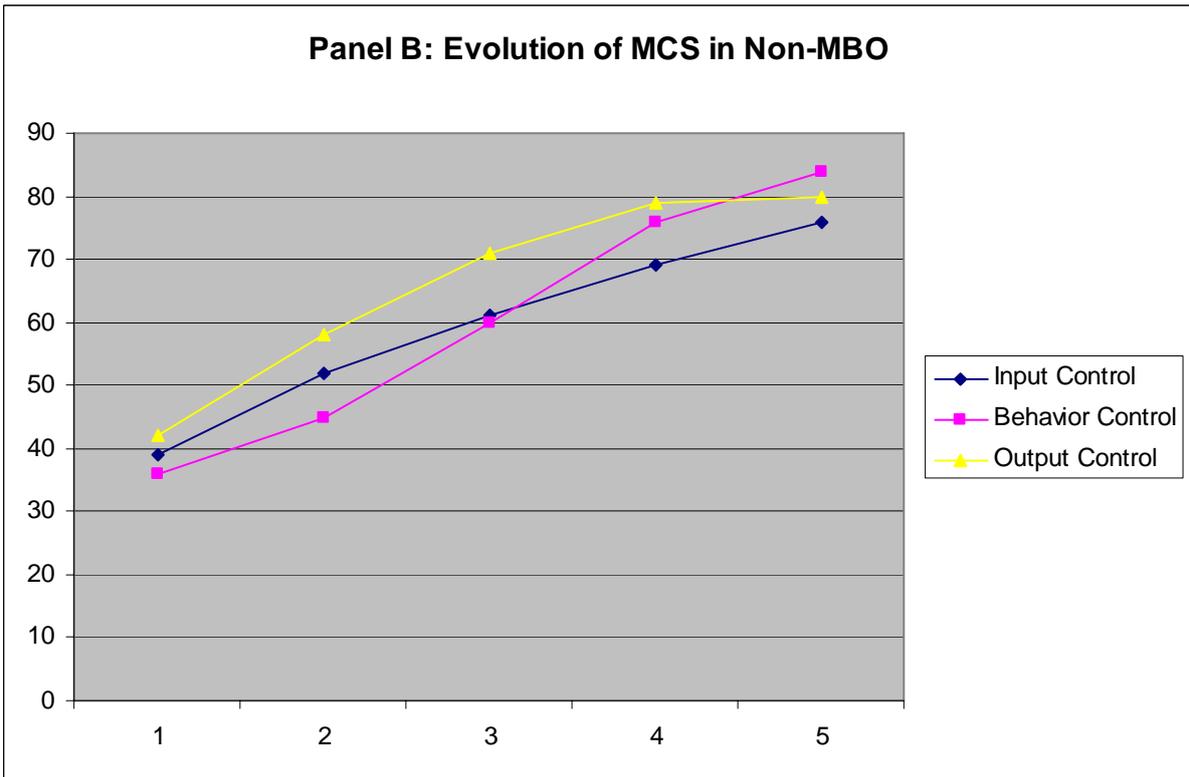
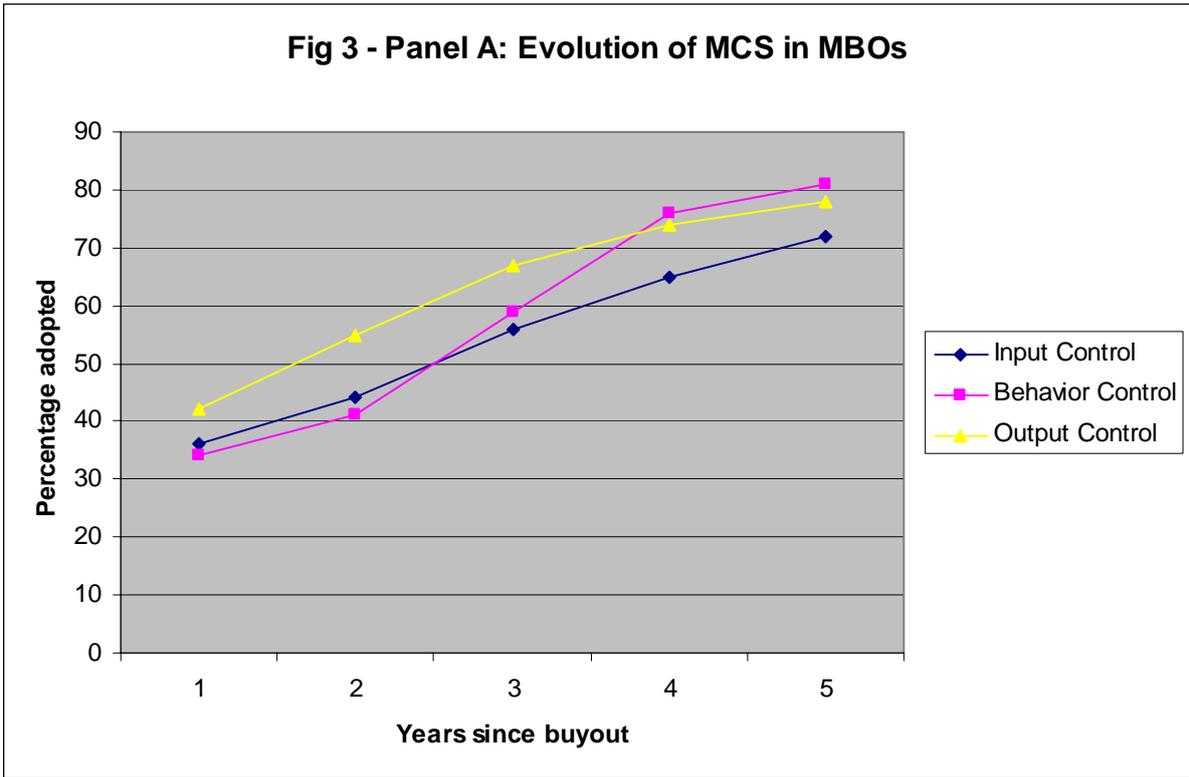


Fig. 3. Adoption of management control systems: Panel A - Management control systems and buyout age in MBOs; Panel B - Management control systems and buyout age in non-MBOs.

Table 2 Panel A: Descriptive Statistics

Variables	Year 1	Year 2	Year 3	Year 4	Year 5
MCS					
Mean	0.36	0.51	0.63	0.74	0.80
Std. Dev	0.18	0.19	0.19	0.20	0.20
Input Control ^a					
Mean	0.35	0.48	0.59	0.67	0.73
Std. Dev	0.26	0.26	0.27	0.28	0.26
Behavior Control					
Mean	0.33	0.41	0.58	0.76	0.84
Std. Dev	0.28	0.28	0.26	0.27	0.24
Output Control					
Mean	0.41	0.63	0.74	0.79	0.82
Std. Dev	0.24	0.23	0.24	0.24	0.24
Size					
Mean	76.30	71.61	197.30	386.78	523.85
Median	42	63	86	120	126
Std. Dev	175.45	238.39	220.77	412.37	585.65
BOARD					
Mean	0.71	0.73	0.73	0.77	0.76
CEO					
Mean	0.33	0.35	0.35	0.54	0.52
HR MANAGER					
Mean	1.65	0.78	1	1	2
CFO					
Mean	1.34	2.38	3.25	3.89	4.38
BD MANAGER					
Mean	1.17	1.56	2.45	2.76	3.38
COSTLEADERSHIP					
	Std. Dev =				
	0.72				
	Actual Range				
	= -1.89-1.53				
	Cronbach's α				
	= 0.71				
DIFFERENTIATION					
	Std. Dev =				
	0.81				
	Actual Range				
	= -2.54-2.17				
	Cronbach's α				
	= 0.84				
IPO rate					
Mean	14.9				
Trade Sale rate					
Mean	22.7				
Revenues ('000) ^b	11,869				
Mean					
Industry	Number of				
	companies				
Manufacturing	26				

Trade	43
Telecommunications	11
Health & Education	21
IT Industry	17

Notes: a: Input, behavior, and output control are the percentage of systems adopted over the maximum number of systems that can be potentially adopted.

b: Revenues are for the last year of data available.

Panel B: Correlation Matrix

	SIZE	BOARD	CEO	CFO	HR MAN	BD MAN	SUBSIDIARY	MCS	Input Control	Behavior Control
BOARD	0.48									
CEO	0.17	0.47								
CFO	0.36	0.32	0.29							
HR MANAGER	0.42	0.52	0.38	0.23						
BD MANAGER	0.24	0.53	0.26	0.20	0.48					
SUBSIDIARY	0.28	0.58	0.24	0.31	0.35	0.24				
MCS	0.48	0.63	0.49	0.54	0.57	0.48	0.37			
Input Control	0.32	0.45	0.28	0.43	0.75	0.52	0.39	0.47		
Behavior Control	0.16	0.61	0.57	0.22	0.62	0.54	0.31	0.52	0.53	
Output Control	0.13	0.55	0.28	0.34	0.38	0.41	0.35	0.64	0.49	0.36

Note: Pearson correlations reported. All correlations are significant at the 1% level.

Table 3: Buyout Adoption of MCS

	MCS		Input Control		Behavior Control		Output Control	
	Coefficient	Z- stat	Coefficient	Z- stat	Coefficient	Z- stat	Coefficient	Z- stat
SIZE	1.21**	0.58	0.68**	0.76	1.34***	0.64	0.16	0.15
BOARD	1.38**	2.74	1.52**	1.86	2.36***	1.65	1.74***	1.48
CEO	1.14*	0.11	1.85***	0.01	1.54***	0.03	0.12	- 0.67
CFO	1.79**	2.49	1.32**	3.11	1.21**	1.18	2.27***	1.31
HR MANAGER	1.64**	0.22	3.65***	1.34	3.86***	5.06	1.16**	4.51
BD MANAGER	1.84*	1.31	1.12**	1.15	4.25***	2.76	1.52**	1.82
COSTLEADERSHIP	1.03**	0.01	1.06**	0.02	0.03	0.18	3.67***	3.31
DIFFERENTIATION	2.25**	0.82	2.22***	0.68	3.73***	0.42	0.21	- 0.91
SUBSIDIARY	1.03	0.17	0.12	0.14	0.04	0.12	0.32**	0.21
Manufacturing	0.86	0.31	1.30	0.35	0.46*	0.21	1.69***	3.60

Trade	1.05	0.29	0.93	0.89	1.73	4.49	0.78	-
Telecom	0.91	-	0.74*	-	0.83	-	0.80	-
Health & Education	0.73**	-	1.94***	0.60	0.90	-	-1.47*	3.51
IT Industry	0.96	-	0.80	-	1.27	0.89	1.25	0.81
		0.33		1.55				1.79

Note: *, **, *** indicate significant at 1%, 5%, 10% respectively; one-tailed for SIZE, CEO, CFO, HR MANAGER, BD MANAGER, two-tailed otherwise.

Table 4: MCS and Buyout Firm Performance.

	Revenue Growth	EXIT		EXIT2	
		IPO	Trade Sale	IPO2	Trade Sale
CONSTANT	1.197* (0.441)	1.691*** (0.559)	0.351*** (1.016)	0.825*** (0.698)	0.636*** (0.597)
InputControl	0.003 (0.112)	0.531*** (0.455)	0.383*** (0.541)	1.285*** (1.071)	0.856*** (0.839)
BehaviorControl	0.111 (0.143)	1.647*** (0.482)	0.372** (0.282)	0.894*** (0.953)	0.639** (0.661)
OutputControl	0.012* (1.284)	1.536*** (0.338)	1.831*** (0.986)	0.427** (0.284)	0.374*** (0.263)
SIZE	0.219* (0.164)	0.771*** (0.153)	0.631*** (0.581)	0.541*** (0.493)	0.681** (0.509)
BOARD	0.066 (0.162)	0.841*** (0.512)	0.536*** (0.432)	0.533*** (0.479)	0.473*** (0.310)
CEO	0.002 (1.202)	0.298*** (0.020)	0.017* (0.033)	1.451** (0.012)	0.063** (0.071)
HR MANAGER	0.142 (0.101)	0.253*** (0.139)	0.109** (0.085)	0.324*** (0.236)	0.001 (0.002)
CFO	0.105 (0.021)	0.249*** (0.376)	0.002 (0.117)	0.282** (0.138)	0.001 (0.004)
BD MANAGER	0.171 (0.049)	0.231 (0.153)	0.232** (0.357)	0.002* (0.002)	0.523*** (0.324)
COSTLEADERSHIP	0.105 (0.016)	3.342*** (0.618)	1.256** (0.781)	0.672*** (0.325)	0.123 (0.120)
DIFFERENTIATION	0.116* (0.218)	2.671*** (0.357)	2.341*** (0.873)	1.342*** (0.565)	0.654** (0.345)
SUBSIDIARY	-0.005 (0.029)	0.231 (0.181)	-0.031 (0.171)	0.187 (0.168)	-0.001 (0.069)
Industry Controls	Yes	Yes	Yes	Yes	Yes
Observations	107	17	26	17	26
P-value of F-Statistic	0.006	0.009	0.013	0.011	0.007
R ²	0.112	0.560	0.346	0.461	0.384

Note: The standard errors and covariances are White heteroskedasticity-consistent. In all regressions, industry controls are included but not reported. Values significant at the 1%, 5% and 10% level are identified by ***, **, *.

Table 5: Endogeneity – MCS and Buyout Firm Performance.

	Revenue	EXIT	EXIT2		
	Growth	IPO	Trade Sale	IPO2	Trade Sale 2
Constant	0.186 (0.131)	0.008 (0.513)	0.027* (0.930)	0.024* (0.706)	0.010 (0.003)
InputControl	0.198 (0.160)	1.180*** (0.792)	0.691*** (0.530)	0.648*** (0.441)	0.400*** (0.355)
BehaviorControl	0.258 (0.163)	0.447*** (0.234)	0.854*** (0.241)	1.031*** (0.420)	3.106*** (0.861)
OutputControl	0.056 (0.164)	0.474*** (0.226)	1.277*** (0.612)	0.279** (0.036)	1.083*** (0.961)
SIZE	0.218 (0.283)	0.832*** (0.529)	0.460** (0.434)	0.774*** (0.678)	0.203** (0.734)
BOARD	0.094 (0.215)	0.410*** (0.351)	0.191** (0.133)	0.318*** (0.212)	3.157*** (1.828)
CEO	0.124 (0.221)	0.378** (0.257)	0.216*** (0.114)	0.118 (0.092)	0.273*** (0.162)
HR MANAGER	0.186 (0.131)	0.212*** (0.161)	0.264*** (0.142)	0.052 (0.085)	0.169** (0.276)
CFO	0.203 (0.255)	2.955*** (1.175)	0.210*** (0.116)	3.065*** (1.416)	0.249** (0.147)
BD MANAGER	0.170 (0.142)	0.261** (0.171)	0.001 (0.001)	0.178** (0.153)	0.001 (0.073)
COSTLEADERSHIP	0.115 (0.109)	0.236*** (0.244)	0.233* (0.43)	0.162*** (0.121)	0.004 (0.001)
DIFFERENTIATION	0.130 (0.137)	0.278*** (0.114)	0.175** (0.085)	0.317*** (0.035)	0.024 (0.028)
SUBSIDIARY	0.001 (0.003)	0.163 (0.149)	-0.001 (0.007)	0.243 (0.127)	0.113 (0.154)
Industry Controls	Yes	Yes	Yes	Yes	Yes
Observations	107	17	26	17	26
P-value of F-Statistics	0.011	0.007	0.011	0.009	0.013
R ²	0.118	0.361	0.589	0.393	0.338

Notes: The standard errors and covariances are White heteroskedasticity-consistent. In all regressions, industry controls are included but not reported. Values significant at the 1%, 5% and 10% level are identified by ***, **, *.

Appendix I: MCS and Information Purpose

	Input Control Systems	Behavior Control Systems	Output Control Systems
Purpose	<p>To Develop Human Capital: input control systems provide support for buyout specific human resource policies, implement rigorous staffing procedures, and provide opportunity for employee training and development. Specific human resource systems that support buyout-specific company operations include:</p> <ul style="list-style-type: none"> • Staffing procedures • Human capital development strategies • Employee turnover management 	<p>To Enhance Revenue: behavior control systems attempt to understand changes in external buyout environment, analyze external information, facilitate buyout growth and development, and implement revenue-enhancing measures such as work processes relating to new product development, innovations or refinements in existing product varieties. The systems collect and analyse information related to:</p> <ul style="list-style-type: none"> • Scanning external information • Responsiveness to the market • Non-financial and subjective data 	<p>To Minimize Cost: output control systems achieve consistent performance levels in buyouts by constantly setting targets and comparing actual performance against these targets. The systems collect and analyse information related to:</p> <ul style="list-style-type: none"> • Cost minimization targets and achievements • Operations control targets and achievements • Financial and objective data
Associated MCS	<p>Organizational chart; Mission or values statement; Company-wide newsletter; Establish best staffing procedures; Employee orientation program; Human capital development plan; Involvement in skill development activities; Controls on employee turnover.</p>	<p>Internal audits, checks and balances of information; Accountable for actions, regardless of result; Restrictions on strategic choices (products not to be sold, customers not to be served, maximum number suppliers etc); Controls for investment in long-term assets; Externally oriented information systems (marketing</p>	<p>Key performance indicators; Quality standards and controls; Budget controls; Cost controls; Sales productivity standards (input-output measures; sales/employees etc.); Evaluations place weight on results; Routine analysis of financial performance against target; Pay consists of</p>

		databases e.g., customer relationship management systems etc); Operating expenses approval procedures; Capital investment approval procedures; Customer development plan; Product portfolio plan (plan about future products)	performance-based rewards.
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Notes

ⁱ Leveraged buyouts are normally undertaken by private equity firms who raise specialist funds for the purpose. However, since private equity firms also raise funds for dealing with operations such as distressed debt, the common industry practice to distinguish between these activities is to call buyout funds as buyout sponsors.

ⁱⁱ Empirical research has shown that these generic strategies may indeed be linked in a variety of ways (Hill, 1988; Jones and Butler, 1988; Murray, 1988), and, therefore, they may not be mutually exclusive.

ⁱⁱⁱ In the 1980s and 1990s, apart from a few private equity firms, buyout activity was mostly undertaken by European venture capital firms. It was therefore likely that the amount of leverage used in buyout activity was less than the one used in U.S.-based firms. However, post-2000 a large number of European-based firms have raised private equity funds that solely target leveraged-buyout activity. US-based private equity firms have also established their offices in several European countries to directly participate in the local buyout market. These trends have helped converge buyout practices in both sets of markets.

^{iv} Our IPO and Trade Sale data favorably compare with the general trends in LBO market (see Kaplan & Strömberg, 2009).

^v For example, Chennel (2003) argues ‘Conventionally, MCS are perceived as passive tools providing information to assist managers. However, approaches following a sociological orientation see MCS as more active, furnishing individuals with power to achieve their own ends (p.128-129)’.

^{vi} PE sponsors make their investments via LBO funds that have a limited life span of 10-12 years.