Configurations of Control: A Transaction Cost Approach

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Abstract

In this paper, I present a theory of management control based on Transaction Cost Economics. This theory seeks to integrate into a single framework a set of insights as to the nature of the organization's activities, the control problems that are inherent in these activities, and the unique problem solving potential of various archetypal control structures. The gist of the argument is that activities predictably differ in the control problems to which they give rise, whereas control archetypes differ in their problem-solving ability, and that alignments between the two can be explained by delineating the efficiency properties of the match. This is a contingent configuration approach. It is a configuration theory in that it offers a set of ideal types, conceived of as internally consistent and discriminating clusters of attributes from multiple dimensions that have a specific effect on control structure effectiveness as the variable to be explained. But it is also a contingent approach in that it specifies the conditions in which each of the archetypes is most effective.

Key words: Management control theory, Transaction cost economics, Configuration theory

1. Introduction

As a field of academic inquiry, management control (MC) studies the processes and mechanisms that organizations use to influence the behavior of organizational actors so as to contribute to the achievement of some pervasive objectives of the organization. In this paper, I develop an alternative theory of MC. This theory is best characterized as a contingent configuration theory. That is to say, it features a set of control archetypes, alongside with the contingency factors that help to predict which of these archetypes is most effective in various

conditions. As such, this is a theory of MC effectiveness. But assuming that effectiveness is an important driver of control structure design, it is also a theory of control structure variety, addressing the important issue as to why control structures differ between (different parts of) organizations.

This theory draws heavily on Transaction Cost Economics (TCE; Williamson, 1975, 1985, 1996). In so doing, this paper adds to the incipient but rapidly growing literature that applies the insights of TCE to issues of MC (examples would include Colbert & Spicer, 1995; Covaleski, Dirsmith, & Samuel, 2003; Dekker (in press); Ouchi, 1979, 1980; Speklé, 2001; Spicer & Ballew, 1983; Tiessen & Waterhouse, 1983; Van den Bogaard & Speklé, 2003; Van der Meer-Kooistra, 1994; Van der Meer-Kooistra & Vosselman, 2000; Vosselman, 2002). Some of these contributions concentrate on specific control problems, specific cases, or specific control instruments. Others –like the current paper- explicitly suggest that the usefulness of TCE extends well beyond the specific, and that it provides valuable input to a more general theory to support the study of MC structures.

The theory I develop integrates into a single, coherent framework a set of insights as to the nature of the organization's activities, the control problems that are inherent in these activities, and the discriminating problem solving potential of various archetypal control structures. Each of these archetypes is a coherent, internally consistent configuration of control devices that has a unique problem solving potential, and that, consequently, can be associated with the contingent and predictable control problems that inhere in the organizational activities. The individual archetypes will be described using four broad dimensions that collectively cover the most important design parameters (cf. also Jensen & Meckling, 1992): (1) the organizational structure, e.g. level of centralization, room for discretionary behavior at different levels of management, and allocation and demarcation of responsibilities; (2) standardization, covering issues as to the source and relative importance of ex ante norms and standards to guide behavior; (3) monitoring and performance evaluation, comprising such matters as the scope and intensity of monitoring and the source and role of performance benchmarks; and (4) the reward and incentive structure. In this degree of specification resides one of the major differences between the current theory and alternative approaches. The literature offers many control typologies. Examples include Ouchi's market, bureaucracy, and clan mechanisms (Ouchi, 1979, 1980), Merchant's action, results, and personnel controls (Merchant, 1982), Snell's behavior, output, and input control systems (Snell, 1992), and Hofstede's types, ranging from routine control to political control (Hofstede, 1981). Although the approach that I develop in this paper is at least broadly consistent with this prior literature, it goes much further in dimensionalizing the types.

The reach of the approach extends beyond the individual organization to include control aspects of cooperative arrangements between firms (Speklé, 2001; Vosselman, 2002). Nevertheless, I will focus here on MC within the confines of the hierarchy. Within these confines, I will emphasize control at the level of the organizational subsystems (e.g. business units, divisions, departments, or more generally, more or less homogeneous centers of activities that are sufficiently important to warrant specialized control). Much of the argument has relevance also at different levels of analysis (mutatis mutandis) but it is at this level that the approach is best able to show its hand. It is also the level at which many interesting problems reside.

The remainder of this paper is structured as follows. Section 2 provides some background to the configurational approach and offers some ideas and notions that may help to position the proposed theory in the academic discourse. In section 3, I develop the theory as such. Section 4 discusses how this theory can be tested and section 5 offers some final remarks.

2. The Case for Configurational Thinking

It has often been noted that control structures are compositions of a large number of different elements (Flamholtz, 1983, 1996; Merchant, 1985a; Otley, 1980, 1999; Rotch, 1993). These elements include organizational design, the allocation of responsibility and accountability, planning and budgeting, performance evaluation practices, reward and incentive structures, and more. MC structures as they exist in reality differ with respect to the elements they include. Also, the elements as such can be designed and used in many different ways. Moreover, organizations differ in the relative importance they attach to the elements that make the structure. The obvious conclusion seems to be that MC structure variety is potentially bewildering. Indeed, "[if] organizations were complex amalgams of multiple attributes that could vary independently and continuously, the set of possible combinations would be infinite" (Meyer, Tsui, & Hinings, 1993: 1175). Fortunately, however, organizations cannot be so described. At least, those taking a configurational perspective claim that the potential variety is limited by the attributes' tendency somehow to cluster into a relatively small number of coherent patterns. Thus, whereas the conceivable array of possible combinations is enormous, most of these combinations lack a significant empirical counterpart. Only relatively few occur frequently (Meyer et al., 1993; Miller, 1999; Miller & Mintzberg, 1983). Accordingly, researchers in the configurational tradition seek to identify these patterns or – which is the more usual term- configurations. A configuration is a "multidimensional constellation of conceptually distinct characteristics that commonly occur together" (Meyer et al. 1993: 1175). Moreover, these researchers seek to generate typologies or taxonomies[1], i.e. a finite set of discrete configurations that collectively describe a large proportion of the focal phenomena.

Configurations (also referred to as archetypes, ideal types, or gestalts, which terms are usually regarded as synonymous) are mental constructs that serve reflection, argumentation, and theorizing (Machlup, 1978). They represent phenomena that *might* exist, rather than actually existing phenomena. Thus, an ideal type represents a unique combination of the dimensions used to describe the set of ideal types that, as a combination, is expected to result in a specified level of the variable to be explained. Accordingly, organizational ideal types are not categories of organizations (Doty & Glick, 1994; cf. also Machlup, 1978). Rather, the ideal types function as theoretical cornerstones in the development of hypotheses (see section 4.1 for a discussion of the ramifications of this point). Usually, these hypotheses involve expected relationships between the similarity of an actual organization to an ideal type on the one hand, and the dependent variable on the other. A typical example of such a

[1] The term typology is usually associated with a theoretically/conceptually derived set of configurations, whereas the term taxonomy refers to an empirically based set (Dess et al. 1993; Doty & Glick, 1994; Meyer et al. 1993; Miller, 1999).

hypothesis would for instance assert that the closer the resemblance between an organization and an archetypal configuration, the more effective that organization will be. Moreover, the ideal types act as a sort of benchmark against which interesting observations present themselves more readily and that add contrast to the observations, facilitating analysis of complex phenomena and providing a language in which to cast the analysis.

Configuration research has gained quite a prominent position in the study of organization, particularly (but not exclusively) in the field of strategic management (Dess, Newport, & Rasheed, 1993; Doty & Glick, 1994; Miller, 1999; Miller & Mintzberg, 1983). Contributions include the seminal works of Mintzberg (1983), Miles & Snow (1978), and Miller & Friesen (1984), to name but a few of the classic references. The configurational theme has also found its way into economics, usually under the flag of complementarities (Holmstrom & Milgrom, 1994; Milgrom & Roberts, 1990, 1995). Williamson's TCE is configurational in nature too, although this property has not been emphasized much in the literature. In MC theory, configurational thinking is present in for instance the work of Ouchi (1979, 1980). More recently, Moores & Yuen (2001) explicitly referred to their study as configurational.

There is much to be said in favor of the configurational approach[2]. As has already been pointed out, MC works through complex arrangements of different control mechanisms in which the individual mechanisms can take on many different manifestations and meanings. To add to this already overwhelming complexity, both the antecedents and consequences of control mechanisms and structures may be situation-contingent in various ways. If it is possible to capture this variety in a limited number of well-specified configurations, then that would certainly help to reduce the complexity involved in the attempt to understand control.

Another advantage of the configurational approach is that it moves beyond reductionist models built on linear or simple interaction relationships (Dess et al., 1993; Doty & Glick, 1994; Meyer et al., 1993; Miller & Mintzberg, 1983). It has often been suggested that control mechanisms interact, so that the effects of an individual control mechanism are (partly) dependent on the structure of which it is part (see for instance Fisher, 1995, Otley, 1980). These interactions may take many different forms and may also be influenced by the wider (organizational) context (Abernethy & Chua, 1996; Flamholtz, 1983; Hopwood, 1983; Otley, 1984). Recognizing this, many MC-scholars lean towards a holistic stance, emphasizing that the attributes used to describe control structures in the organizational context have meaning collectively rather than individually. The key idea is that a control structure -conceived of as a package of control instruments- may not be reducible to its parts, and that understanding these parts may not add up to an understanding of the whole. This idea is also central to configuration thinking (Dess et al. 1993; Doty & Glick, 1994; Drazin & Van de Ven, 1985; Meyer et al. 1993; Miller, 1999). Rather than trying to disentangle the relationships between

[2] There is also much to be said against the configurational approach. Or rather, much has been said against this approach to theorizing –the most serious critique being that configurational theories are not real theories, but mere classification schemes (cf. Doty & Glick, 1994, for an overview; Meyer et al., 1993). However, although this criticism may well be appropriate in some specific instances, it cannot be generalized to the approach as such and does not affect the credibility of the approach (Doty & Glick, 1994; cf. also Miller, 1999). For an especially passionate critique of the configurational approach, see Donaldson (1996, 2001).

the individual parts and analyzing their effects "a few variables at a time" (Miller, 1986: 235), the configurational approach focuses on how organizational attributes fit together within each archetype, and on how these internally consistent sets of features impinge on the ultimate dependent variable -which is usually (some notion of) organizational effectiveness. Thus, configuration theories incorporate two different levels of theory: a 'grand theory' that generalizes to all organizations and 'middle-range theories' that apply solely to the individual types (Doty & Glick, 1994). The middle-range theories specify within each individual type the pattern of relationships among the descriptive variables, and articulate how this pattern supports internal consistency and achieves complementarities (cf. Milgrom & Roberts, 1995), or avoids organizational incompatibilities (Hill, Hitt, & Hoskisson, 1992). The grand theoretical assertions on the other hand specify how the individual types relate to the dependent variable (again: usually organizational effectiveness). These different levels of theory contribute to a more synthesis-seeking orientation (Miller, 1986, 1999; Miller & Mintzberg, 1983). But the approach also allows inclusion in the theory of 'embedded', synergetic effects that cannot be represented very well through additive or interactive relationships. In addition, it is able to accommodate discontinuities -changes in kind rather than degree- and potential nonlinearities, i.e. the possibility that variables found to be positively related in one configuration may be unrelated or inversely related in another (Doty & Glick, 1994; Meyer et al., 1993; Miller & Mintzberg, 1983).

Of course, all this is only useful if configurations do in fact reflect reality, that is, only if common, non-random, internally homogeneous clusterings of attributes do in fact occur in the real world (Miller & Mintzberg, 1983). This is an empirical issue that cannot be settled a priori. Moreover, the configuration theory must be able to capture these clusterings sufficiently fully, and must be able to make sense of them in a sufficiently illuminative way. This paper aspires to contribute to such a theory.

3. A Transaction Cost Approach to Management Control

3.1 The gist of the argument

An organization depends on the contribution of a large number of individuals to achieve its aims. TCE suggests that MC structures can be understood as solutions to the coordination, adaptation, incentive and enforcement problems that arise in contracting for and controlling these contributions. These problems originate from two main sources: (1) the characteristics of human behavior; and (2) the attributes of the activities in which the organization engages, and the contributions required from the organization's members to support these activities. On the behavioral side, TCE makes allowance for bounded rationality and opportunism. Bounded rationality refers to man's limited cognitive and computational ability. Opportunism is "self-interest seeking with guile" (Williamson, 1985: 47), which may include calculated efforts to mislead and deceive. The nature of the activities and the required contributions can be defined discriminatingly through their scores on three dimensions: (1) uncertainty, or the extent to which the activities and desired contributions are amenable to ex ante programming; (2) the degree of asset specificity, or the extent to which alternative uses of investments made to support the activity involve opportunity losses; and (3) the intensity of

ex post information asymmetry[3], or the ability to assess the true quality of actually delivered performance. Given bounded rationality and opportunism, these features are predictably associated with distinctive control problems that need to be dealt with. Organizations try to cope with these problems by adopting appropriate MC structures. These come in an overwhelming variety, but within this variety, a limited number of typical control patterns can be discerned: (1) arm's length control, featuring outcome control based on market-derived standards; (2) machine control, which is administrative control based on codification of behavior or predefined performance targets; (3) exploratory control, which works from converging insights that accrue and spread during the process; and (4) boundary control, characterized by its proscriptive nature, emphasizing actions to be avoided. These archetypal control structures differ in their problem-solving ability, which make them appropriate for the governance of some activities and contributions, but not for others. Moreover, they differ in respect of cost, and ultimately, an empirically observed alignment of an activity with a control structure is explained by delineating the relative efficiency properties of the match.

3.2 Effectiveness, efficiency, and remediableness

TCE adopts a micro-analytical point of view in which the transaction is the basic unit of analysis. Control structure effectiveness (or rather: efficiency, which is a stronger form of effectiveness in that it presupposes effectiveness) is also studied at that level. TCE asserts that the design of control arrangements is mainly driven by the generic urge to economize on transaction costs. Transaction costs include the relatively straightforward costs of drafting, negotiating, and safeguarding an agreement, but also –and foremost- the more elusive cost of maladaptation and adjustment that could be incurred in case of a mismatch between a transaction and its governance structure, resulting in the transaction drifting out of line because of self-serving and dysfunctional behavior. Explaining observed control structures, thus, comes down to demonstrating their relative efficiency in serving their purpose, which is to increase the probability that the transaction leads to satisfactory outcomes.

This is a very flexible and scaleable approach. Its general logic can be applied to various specific research questions at different levels of aggregation and analysis. In TCE, the central concepts as transactions and contracting are broadly construed, and can meaningfully be used to describe any relationship in which parties expect something from one another and are prepared to give something in return. This includes for instance the relationship between the organization and its substantive parts –be they business units, divisions, departments, or otherwise-, the lateral relations between those parts, as well as the relationship between senior and junior management within one of these parts, i.e. the kind of relationships MC is interested in.

But what about the assumption of efficiency? For surely, there is more to organization than efficiency, and reducing one's explanations to motives of economizing may be consid-

[3] This third variable is usually not explicitly referred to in standard TCE, but it is nevertheless part of TCE's analytical apparatus. The variable frequency –which is in fact among the standard variables of TCE- will be ignored because throughout this paper, I assume that frequency is sufficiently high to warrant the design of specialized governance.

ered rather procrustean indeed. The efficiency assumption, however, only applies to matters of contracting and control, not to the reasons organizations may have to engage in the activities that need to be controlled. The activities may be driven by a variety of motives, including purposes of a non-economizing nature. The approach suggested here accepts this, and works from these motives without questioning them. Only thereafter does the assumption of transaction cost efficiency come in: given what the organization wants from the activity, its control structure is designed in such a way to avoid wasting resources in getting the organization what it wants. This would seem sufficiently unobtrusive to accept it as part of the theory, at least until empirical evidence advises otherwise.

To assess transaction cost efficiency, TCE uses a comparative approach in which the properties and effects of the observed governance structure are confronted with those of alternative control arrangements that could realistically have been installed instead of the one actually chosen. The actual structure is considered efficient -and, consequently, explained- if this analysis reveals that the actual structure is better equipped to deal with the contractual problems inherent in the transaction than the alternatives, i.e. that none of the feasible alternatives could be implemented with expected net gains. For many purposes, this remediableness test (Williamson, 1996, 1999) can be applied in a wholly qualitative way, which is quite useful because of the difficulties involved in measuring transaction costs. Especially the costs of maladaptation are notoriously hard to measure, because they are opportunity costs. Yet these tend to be the most important. In many cases, however, one is able to demonstrate that the adopted governance structure has some unique features that are essential in coping with the relevant contractual problems and that cannot be replicated within another mode of governance. If the potential transaction costs associated with these problems are evidently large, the explanation of the actual structure may be based solely on the unquantified amount of these costs, for exact measurement of self-evidently large transaction cost differentials may safely be regarded as redundant. Now it is true, of course, that any such assessment of efficiency is necessarily provisional. After all, it is always conceivable that there exists a superior, but hitherto ignored alternative. However, because the procedure urges the researcher to explicate the particulars of the efficiency assessment, it allows theoretical and empirical scrutiny and discussion of the argument. From an academic stance, this is good enough.

3.3 The attributes of the activity and their implications

The effects of uncertainty: programmable versus non-programmable contributions

Uncertainty is a condition that can arise from many sources, including market dynamics, disturbances in the external environment, environmental complexity, task uncertainty, task complexity, interdependencies, and unfamiliarity. However, whatever the source, the effects are similar[4]: desired contributions are not amenable to up front programming, and maintain-

[4] This, of course, is a gross simplification. Many studies have differentiated between sources of uncertainty, and with good cause. Glossing over the details, however, may well be forgiv-

ing flexibility to allow adaptation to events as they unfold and to information as it accrues becomes imperative. This basic insight –which also has a long history in MC, albeit under different names and in various guises[5] -allows organizational activity to be grouped in two broad categories: (1) programmable activities, i.e. activities for which the organization possesses sufficient knowledge and information to decide in advance on the way in which they are to be executed in order to achieve success, or activities for which the outcomes that may realistically be expected to result from them can be defined ex ante; and (2) non-programmable activities, i.e. activities for which the organization lacks the a priori ability and experience to relate actions to outcomes, or even lacks a clear idea as to what it wants to achieve. The availability of norms and standards in the first group permits a fairly comprehensive ex ante articulation of the characteristics of the contribution that is required from the members of the organization, and contracting for that contribution can be reasonably complete. Control, therefore, can be prescriptive or authoritative in nature, featuring rules of behavior, specific instructions, and relatively rigid performance targets, and focusing on assuring compliance to these pre-imposed norms. In the second group, in contrast, it is not possible to specify required contributions in advance. Due to the absence of ex ante standards, contracts must be of a general thrust nature, emphasizing a general commitment or sketching the broad confines within which performance ought to fit, rather than delineating an accurately specified contribution.

Asset specificity: differential access to market discipline

Asset specificity refers to the size of the opportunity losses that arise if the (physical or human) investments made to support the activity are to be put to alternative uses or users. The degree of asset specificity is strongly linked to the marketability of the investments. It is low in case of general-purpose assets for which a large and active market exists. Conversely, it is high in the case of specialized, custom-built assets for which there is no readily accessible alternative source of supply or demand. Activities of low asset specificity are expected to be governed by the market mechanism, and are outside the scope of this paper. Here, the concern is with activities that fall somewhere in the range of moderate to high asset specificity. Moderate asset specificity implies the availability of a limited number of more or less comparable alternative sources of supply or demand. This number is too small to consign control to the 'invisible hand', but large enough to reduce the leeway for opportunism, either by lending credibility to the threat to take one's business elsewhere when confronted with opportunistic behavior, or by providing relevant performance benchmarks that can be used for control purposes. In either case, market discipline -though not the sole control device- can be part of the control structure. This changes when asset specificity approaches the higher end of the continuum. Then, competition erodes up to the point of non-existence, and

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able in the context of the aim of the present paper –which is to provide the outlines of a new theoretical perspective.

[5] Early references would include for instance Burns & Stalker (1961), Thompson (1967), and Galbraith (1973). See also Chenhall (2003) for a recent overview of empirical work along these lines.

control has to come entirely from within the contractual relation: market-based discipline thus gives way to administrative control, ultimately to be supplanted by it.

Ex post information asymmetry: assessing the quality of delivered contributions

The third variable is the level of ex post information asymmetry, i.e. the extent to which the organization is able to observe and to assess perceptively the true quality of actually delivered contributions. The relevance of this variable is confined to the category of non-programmable activities; in the case of the more programmable ones the required information must by definition be available beforehand. Non-programmable activities carry a certain amount of indeterminacy as a result of uncertainty. This condition may dissolve over time when in the process of contract execution, information accrues on the actual state of the world and more intimate knowledge on the particulars of the activities becomes available, allowing the organization to 'recognize the quality of performance when it sees it'. If these emerging insights spread through the organization, gradually becoming common knowledge, post hoc performance appraisal may be fairly uncontroversial. In this case, the organization is able to evaluate performance using emergent standards that are shared (or at least known) by those involved in the process. This is a situation of relatively low ex post information asymmetry. If, however, the information on performance and contextual details that accrues during the process of delivering the contribution cannot be communicated to other members of the organization in a reliable way, information asymmetry remains high. This situation may for instance arise when the relevant information is highly specialized in character (e.g. expert information), in the context of high task interdependence (cf. Jones, 1984), or when it is not possible to protect the information from opportunistic manipulation by the sender at acceptable cost. Then, the organization is effectually unable to assess the quality of performance, even after it has been delivered.

3.4 Linking control problems and solutions

The attributes of the activity to be controlled are related to predictable control problems, and scoring the activity on these attributes allows identification of the associated set of expected control problems. These different problem sets require different solutions, i.e. a different MC structure. Although MC structures may conceivably come in a large variety, the configurational assumption is that they are in fact variations on a not so large number of common themes. This allows empirical variety to be reduced to differences among a more manageable number of representative archetypal MC structures. The next step, then, is to describe these control archetypes in terms of their elementary composition and their distinctive problem-solving ability, and to match these in a discriminating way with the control needs that are associated with particular activities as defined by their scores on the attributes asset specificity, programmability, and ex post information asymmetry. As a precursor to the fuller exposition of the arguments in current section, figure 1 outlines the resulting perspective, whereas table 1 describes the archetypes along four broad dimensions that collectively cover the most important areas of variation between observable control structures. These are (1) the organizational structure, e.g. level of centralization, room for

discretionary behavior, and allocation and demarcation of responsibilities; (2) standardization, covering issues as to the source and relative importance of ex ante norms and standards to guide behavior; (3) monitoring and performance evaluation, comprising such matters as the scope and intensity of monitoring and the nature of performance benchmarks; and (4) the reward and incentive structure.

[TAKE IN FIGURE 1 ABOUT HERE]

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Arm's length control

In the group of programmable activities, where control takes a prescriptive orientation, the emphasis will be on compliance to the predefined norms and standards. When asset specificity is moderate, promulgation and sometimes even enforcement of these norms and standards may partly be left to the market, and managerial involvement in control may be limited correspondingly (cf. Jones & Hill, 1988). Because in this situation there is at least some competition between alternative sources of supply and demand[6], the question as to what constitutes adequate performance is answered in part by the market, thus giving contracting parties some common reference point against which to assess the reasonableness of their expectations and on which to base the control structure. However, asset specificity being moderate, competition is not strong enough to provide self-sufficient safeguards, and additional control mechanisms will be installed. Within arm's length control, these include continuous access to the rich repertoire of managerial intervention; probably in conjunction with performance-based compensation plans to increase goal congruence between the contracting parties. However, typical for arm's length control is that the intervention repertoire is only called upon in case performance drifts out of line with the market, allowing detached control and providing transaction cost benefits by economizing on management's time. Because in this archetype the contributor retains significant autonomy, the term arm's length control seems an appropriate label. Arm's length control is associated with generic, relatively unspecific activities for which an outside market exists, but that are internalized nonetheless[7].

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[6] Strictly speaking, this need not always be true. Conceivably, asset specificity may also be low in absence of outside competition. This would be the case when some unique monopolistic asset is deployable in several alternative ways. This situation, however, has limited empirical relevance and may, therefore, safely be ignored.

[7] There may be many reasons to internalize such activities. One example may be the presence of site specificity, making internalization sensible, but still allowing performance benchmarking. Another reason could be the wish to preserve some in-house production capacity to serve as a credible threat in the dealings with outside suppliers. Preservation of a 'window on

Machine control

High programmability is associated with prescriptive control and a focus on compliance to pre-set norms and standards. However, given a high degree of asset specificity, these norms and standards cannot be culled from market interaction as in arm's length control, but need to be defined within the organization. The resulting structure strongly resembles the mechanistic organization described by Burns & Stalker (1961), the machine bureaucracy portrayed by Mintzberg (1983), and Ouchi's bureaucracy (1979). It features standardization and regulation of behavior, codification of budget targets, detailed monitoring, systematic measurement of performance on pre-defined dimensions, and clearly identified areas of accountability, usually mirrored in the organizational structure. Its emphasis on programming, progress monitoring, and correcting deviations from pre-set directions suggests the label machine control for this structure.

The machine control archetype is a structure that is associated with mature programs and routine activities. This archetype can be refined by distinguishing action oriented and result oriented machine control types. In the action oriented approach, control is predominantly achieved via codification of actions and supervising observance of the rules and instructions, whereas control of the result oriented kind hinges primarily on target-setting, accountability, and reward structures that serve to encourage target-directed behavior. This distinction has been dealt with quite extensively in the literature -see for instance Merchant's results controls and action accountability controls (Merchant, 1982, 1985b), and Ouchi's behavior control versus output control (Ouchi, 1977)- and need no amplification here, except for the efficiency properties of the alternatives.

In many instances, there will be no real choice between action oriented control and the result oriented approach, simply because the available information enables the one and not the other (Merchant, 1982, 1985b; Snell, 1992). Then, straightforward feasibility considerations will be decisive. But when both approaches are feasible, result control will usually reign for it tends to require less elaborate structuring –thus relieving the pressure on bounded rationality-, is likely to demand less higher level management involvement, and is more supportive of adaptation. The latter aspect is important when –low uncertainty notwithstanding- there may still be some unanticipated disturbances or opportunities demanding a flexible response. The result control variant offers subordinates the discretion to affect that response and may rely on a performance-dependent reward system to provide the appropriate incentives (Snell, 1992), whereas the action oriented alternative has no such options and needs to revert to time-consuming hierarchical redefinition of required behavior.

Exploratory control

Low programmability implies the inability to define in advance the attainable outcomes of the activity. Also, it implies that any up front selection of the courses of action that are most

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technology' to facilitate future entry in markets not currently considered vital may also account for internalization of activities that are relatively unspecific.

likely to contribute to satisfactory outcomes is bound to require revision along the way. Explicit contracting for concrete actions or contributions is not feasible, and such activities must start out with little preconceived guidance, i.e. as steps on an uncharted route, the traveling of which requires considerable discretionary authority at the level of the travelers. Following that route, however, is a learning process, and in that process, participants acquire an increasingly deeper understanding of the activity and how they should go about it. This understanding arises from experience, and is thus likely to be asymmetrically distributed (it is only gained by those who actually had the experience) and dispersed (different individuals have different tasks in the activity and their experiences relate to different aspects of the project). Sharing of information, then, becomes vital to decide on the next step on the route and to encourage a sense of coherence in participants' efforts.

Prompt and undistorted sharing of information, however, may conflict with perceived self-interest, because individuals may expect that this information will not only be used for learning purposes and as input for emergent patterns of action, but also for ex post evaluation of individual performance. In that case, one must expect the information to be biased in an attempt to inflate the perception of the quality of performance. In that process, relevant details may be suppressed or become twisted, thus diminishing the value of the information flows for evaluative purposes, but also for learning purposes.

To find a way out of this dilemma, formal instruments of control have not much to offer, and exploratory control is highly informal in nature. It is quite strongly related to Mintzberg's adhocracy (1983). It is also closely akin to the organic organization described by Burns & Stalker (1961). It can be found in innovation-driven (parts of) organizations, but also in organizations going through some major transformation that upsets the relevance of existing know-how and routines. A typical feature of exploratory control is the absence of clearly defined and demarcated individual responsibilities. Rather, it blends permeable matrix-like structures with fluid project teams that are formed and dismantled according to perceived needs as they emerge. Individual responsibilities follow assignments and, like the assignments themselves, are in a permanent state of flux, not getting the time to sink in. Responsibilities, thus, remain unclear. In part, this is a predictable consequence of the impossibility to define in advance what to expect from those involved in the organization, and as such, it may be seen as part of the problem. But it is also part of the solution in that it is a means to encourage a problem-solving attitude, for unclear responsibilities make it harder to refer a problem to someone else as being his or her responsibility (cf. Burns & Stalker, 1961). Essentially, a problem becomes the responsibility of the individual that just happened to stumble upon it first. Solving the problem, then, is likely to extend beyond the capacity of that individual, and he or she must often solicit help from other members of the organization. This serves as a catalyst for information sharing and learning, and it also creates an atmosphere in which cooperation is self-enforcing: next time, the shoe may be on the other foot, and providing help is the best strategy to ensure receiving help on future occasions. Furthermore, it creates an incentive to strive for at least satisfactory performance. Because individuals in this structure depend upon one another for the accomplishment of their own tasks and duties, substandard achievement by some individual tends to interfere with the performance of direct colleagues on whom the individual depends himself. Coupled with the organic information flows that accompany the multitude of cooperative relationships that arises, opportunis-

tic inclinations (e.g. shirking, withholding or manipulating information) become hard to sustain (cf. Marginson, 1999). Moreover, higher level management itself will be involved quite closely in the entire process in a supportive role, reinforcing strategic intentions, giving advice, questioning decisions, asking for explanations et cetera. This involvement is valuable in that it serves coordination and information sharing. But in addition, it ensures that information relevant for assessment of individual performance reaches the proper hierarchical levels.

In this structure, it is not necessary to explicate in advance the criteria that will be used in individual performance evaluation. Simple, open-ended exhortations ('do your best') suffice. The relevant criteria emerge in the process and are known to those involved, because they are part of that very process. Moreover, individuals know that the organization is well-equipped to assess ex post the quality of individual's contribution to the longer-term development of the organization. Then, a simple 'do your best' becomes a meaningful message.

It must be noted that exploratory control is a markedly indulgent structure. It may be sufficient to activate goal-consistent behavior, but it does not necessarily produce the level of effort the organization desires. Its reliance on cooperation and mutual adjustment foster close personal relations, which may easily create a lenient atmosphere in which it is hard to blow the whistle (Jones, 1984). In addition, this archetype's demand for extensive communication and consultation is resource consuming. A similar remark applies to its unstructured routing of problems, which cannot assure smooth problem handling. That is why as soon as insights into the properties of required contributions settle, elements of machine control gain importance, ultimately to supplant the exploratory form. But until then, exploratory control may be the best one can do, which explains its existence.

Boundary control

For non-programmable activities that feature incorrigibly high levels of ex post information asymmetry, it is not possible to define and evaluate performance, not even after the contribution has been made. This situation arises in the control of activities that require input of highly specialized knowledge and skills. The treasury function could be a good example. It is quite common that this function is largely beyond the reach of rest of the organization (including its top management), for the financial literacy required to understand the particulars of the treasury function and its performance is often present only in the treasury department itself (cf. Helliar, 1998). In that case, the rest of the organization is unable to assess the quality of treasury's performance and, a fortiori, unable to provide much guidance to that department. However, even though one may be unable to specify what one expects from the activity, one will usually have at least some notion as to the factors that may actually jeopardize the business. These factors become the primary object of control. Thus, the aim of control shifts from ensuring desired contributions to the prevention of unwanted actions or outcomes. Following Simons (1995), such proscriptive control may be labeled boundary control.

Because the information asymmetry that defies performance assessment will also defy a reasonably complete ex ante specification of actions to be avoided, and because that same asymmetry stands in the way of systematic detection of rule-breaking behavior, boundary

control must be expected to leave considerable room for dysfunctional behavior. Neither is it likely to bring much coherence to the efforts of those involved in the organization. Therefore, boundary control is very much the structure of last resort, only to be expected in conditions where more positive guidance cannot be given and enforced. If such conditions apply, however, boundary control is (relatively) effective, for it is the best one can do.

4. Precursory notes on testing

The ideas advanced in this paper have been presented without empirical backing. They are very much the result of a ground-clearing exercise, and a lot of work remains to be done. However, since every theory must be prepared to submit itself to empirical scrutiny, this section discusses how the transaction cost theory of management control can be tested, and identifies a number of challenges that must be confronted in the process. Because this discussion works from a very demanding notion of testing –it more or less describes the supreme test rather than a mere useful one-, and because the challenges that arise there are actually quite hard, this section also discusses a less ambitious –but nonetheless useful- research agenda.

4.1 The grand test

The central claim of this paper is that the archetypes of control represent efficient (or at least effective) solutions to specific sets of control problems, and that these sets of problems vary with the characteristics of the activities. Thus, given the characteristics of the activities, an empirically observed control structure is conjectured to be more efficient the closer it resembles the relevant ideal type. This is the key hypothesis of the proposed theory, and appropriate tests should focus on this hypothesis.

It is not sufficient –and not valid either- to categorize organizational subsystems as belonging to one of the ideal types and then comparing effectiveness among the categories. Although this procedure has often been applied in testing configurational theories (cf. Doty, Glick, & Huber, 1993), it is deficient for two main reasons. First, as it treats the configurations in the theory as categories rather than ideal types, marginal members of the categories are predicted to be as effective as their central members. In fact, however, the theory predicts that organizational subsystems that only marginally resemble the appropriate archetype are –on average- less effective than the ones that closely resemble them (Doty & Glick, 1994). Second, this procedure ignores the equifinality notion (Doty et al., 1993; Doty & Glick, 1994; Drazin & Van de Ven, 1985; Meyer et al., 1993) –the idea that (in the appropriate circumstances) each of the ideal types represents effective control. As a consequence, there is not much use in comparing for instance the performance of machine control and exploratory control when the circumstances are such that machine control is not a feasible alternative anyway. And even if it were useful for some reason, it is not a test of the proposed theory because the theory says nothing about performance differences among the archetypes.

Any genuine test of a theory should involve its key hypothesis. For the current theory, this implies that it is necessary somehow to measure the deviation of actually observed control structures from the relevant archetype, and then to link these deviations to the

performance of the structures. The technical apparatus to do this and the methodological background are relatively well developed. Dess et al. (1993), Doty et al. (1993), and -especially- Doty & Glick (1994) provide excellent overviews and discussions of the issues involved. The consensus proposal is to use (weighted) Euclidean distances to measure the deviations (Drazin & Van de Ven, 1985; Doty et al., 1993; Doty & Glick, 1994; see also Selto, Renner, & Young, 1995, for an application in the context of MC). This, however, requires formal modeling of the ideal types. It also requires operationalizing effectiveness. Both are real challenges, as the following discussion shows.

4.2 Modeling the ideal types

A precise definition of the archetypes is vital to assess the similarity between an actual control configuration and the archetypes in a formal way. The description of the ideal types in this paper, however, is indicative and far from unambiguous. Although the discussion in section 3 and the summary in table 1 may offer valuable input to a more precise definition, they are mere initial steps, guided by the wish to provide some feel for the archetypes rather than to present a rigorous model. Translating these 'rich descriptions' in more formal language is a demanding task, however. It is very difficult to be rigorous whilst simultaneously maintaining an open eye for the intricacies of organizational life.

One problem here is to adequately capture the nuances of control. For instance, a strong reliance on budgets in situations in which exploratory control is expected to reign would at first glance result in expected inefficiency because it seems inconsistent with the emergent standards theme. Budgets, however, can be used in many different ways. If the organization uses the budget interactively rather than diagnostically (Simons, 1995), it may still fit the idea of exploratory control and be effective (see Simons, 1987, for an empirical study illustrating this use of budgets in a setting of uncertainty that appears to call for exploratory control-like structures). Such details are easily overlooked in the process of drafting one's definitions and in their subsequent use. They are essential nonetheless.

Another problem is to assign weights to the dimensions and constructs used to describe the archetypes. Not all deviations from the ideal type are equally important. In machine control for instance, it may not matter much whether or not the organization assigns financial bonuses to target achievement, especially not when the conditions are such that unforeseen adaptation is hardly ever an issue and when more intensive monitoring compensates for the absence of bonuses. As before, it may be very hard fully to specify such details in advance, and then to fold them back into some relatively unambiguous set of weights. To be sure, it is possible to identify some key attributes of each ideal type. Arm's length control depends vitally on the combination of market-derived performance standards and limited senior management involvement. Critical for machine control is its strong reliance on ex ante defined norms, standards, and targets. Exploratory control hinges on emergent standards and an organizational structure to support that. Finally, boundary control essentially rests on codes of conducts. These key attributes (and deviations from them) should be weighted relatively heavily. But this is still very crude, and one must go beyond this to accomplish truly decisive testing.

4.3 Operationalizing effectiveness

It has already been emphasized that the principal claim of the proposed theory is that control structures that more closely resemble the relevant archetype are more effective than control structures that are less similar to that ideal type. Thus, testing requires measurement of control structure effectiveness. This, however, is problematic. Whereas there is "universal acceptance that the Holy Grail for management control systems researchers is effectiveness" (Machin, 1983: 37), it has proven to be an elusive concept and explicit examinations of control structure effectiveness are quite rare indeed -perhaps because Holy Grails tend to be hard to find. Nevertheless, the widely held view that MC is a means to support achievement of organizational goals implies that explaining MC must involve some demonstration of the actual contribution of observed MC practices to the attainment of these goals.

Although far from being the Holy Grail, TCE's remediableness criterion does come some way in addressing the issue of control structure effectiveness. The remediableness test is a reasonably concrete and practicable procedure that makes remarkably few assumptions as to organizational goals and motives. It merely requires acceptance of a general preference for more effective structures over less effective ones: organizations prefer structures that actually work to structures that are less helpful (or more wasteful) in getting them what they want. And the idea of comparing an actual structure with realistically conceivable alternatives, and thinking these through in terms of their differential effects, is simple, widely applicable, and instructive. At the very least, it gives the analysis a clear sense of direction, forcing the researcher to explicate how the structure deals with the relevant control problems, and how this compares to the problem-solving ability and costs of alternative structures. Unfortunately, however, it is not good enough for the purpose of rigorously testing the current theory. Unless one is able to quantify the transaction costs, the remediableness test does not actually measure effectiveness and efficiency. But then, some form of quantification is necessary for the grand test suggested in section 4.1.

One rather obvious way to operationalize control structure effectiveness is to assume that it translates into organizational effectiveness, and then to measure the latter. Of course, organizational effectiveness is itself an inherently hazy construct, but it has a long history in empirical studies, and by now we may well have learned to live with its ambiguity. There are, however, two difficulties here. One of these has to do with the tenuous relation between control structure effectiveness and organizational effectiveness. Control structure effectiveness is but one of many factors influencing organizational performance, and this influence is probabilistic rather that deterministic. The other –and perhaps more serious one- is that the proposed theory has been formulated at the level of the organizational subsystems (divisions, departments, business units and the like) rather than at the level of the organization as a whole. Performance data at the subsystem level are not easily available. And then, how does one measure the performance of, say, the R&D department or the treasury department? Worse still, how does one measure the performance of an R&D department in a way that

allows comparison with the performance of some other department with different activities, but a similar control structure[8]? This is nevertheless a prerequisite for broad sample testing.

4.4 A less ambitious agenda

Having discussed some of the problems associated with testing the transaction cost theory of MC, it makes sense to consider the implications for the research agenda connected with this theory. An important remark in advance, though, is that one should not make too much of these problems. The problems have been discussed against the background of what an ideal, truly decisive test would look like, and the discussion has focused on what would be required to be able to perform such a sublime test. However, we do not normally apply such demanding standards to the theories we use, and once-and-for-all tests of entire theories are quite rare indeed. Instead, empirical studies usually proceed in a piecemeal fashion, taking elements of theories as the focal point or concentrating on restricted settings, and slowly but steadily working their way through the theory. Furthermore, many of the problems are not unique to the present theory, but are shared by most theories –although not necessarily to the same extent. Also, it is quite natural for new theories to be informal in their early stages of development. And finally, the problems discussed in this paper can be solved –at least in principle. In fact, they have been solved for theories of similar complexity (cf. Doty et al., 1993, for a test of Mintzberg's typology and Miles & Snow's work). Nevertheless, the ultimate test of the transaction cost theory of MC will probably be pending for a while.

In the meantime, there are many less demanding empirical avenues to explore. A first step could be to apply the approach in a series of illustrative case studies (Keating, 1995; Otley & Berry, 1994). Illustrative case studies aim to establish the usefulness of a theoretical perspective by examining its capacity to illuminate some significant aspects of observable control practices. Such studies may help to gauge the extent to which the theory is useful in making sense of control. Another initial step may be to concentrate on the question whether configurations actually exist. If one scores actual control structures on multiple dimensions, is there actually something like "densely occupied regions of the data space" (Miller, 1999: 28)? And if so, do these empirically observed patterns show any correspondence to the proposed theory? Yet another instructive path may be to focus initially on the predictive power of the theory in specific, relatively homogeneous settings –say control within R&D departments in the pharmaceutical industry or control of the treasury function in multinational agribusinesses. Modeling the relevant ideal types in such specific settings may be much easier than specifying them in a universal way. Similarly, operationalizing the attributes of the activities (uncertainty, asset specificity, and ex post information asymmetry) and control structure effectiveness are likely to be less complicated in restricted settings. Of course, such studies are not a direct test of the theory per se, but they are useful nonetheless –both as additions to the empirical basis of the theory, and as contributions to our understanding of control in

[8] Of course, the theory suggests that in order to find a similar control structure, the activities must also be similar. But this similarity is confined to the dimensions asset specificity, uncertainty, and ex post information asymmetry. This leaves open many dimensions on which the activities may differ.

these specific settings. A last suggestion involves a longitudinal study, concentrating on control structure change. If organizations do in fact prefer structures that actually work to structures that are less effective or more wasteful in getting them what they want, one would expect that on average, control structures change over time to become more similar to the appropriate ideal type. This is a testable proposition, and one that may help to avoid having to operationalize effectiveness. It is also a partial and somewhat indirect test in that it presumes effectiveness seeking as an important driver of control structure design, rather than actually testing for that. But then, one must start somewhere.

Interestingly, some of these suggestions come pretty close to the path actually taken in empirical research in TCE in general. Case-like work and series of applications to specific, largely single industry settings have shown that applying TCE is both feasible and helpful (cf. Rindfleisch & Heide, 1997; Shelanski & Klein, 1995, for recent overviews of empirical research in TCE). And by now, this work is so voluminous that it amounts to an enviably solid empirical basis for TCE in general.

5. Some final remarks

Obviously, this paper is very much the result of a ground-clearing exercise, and there are many issues that deserve a fuller treatment than they have in fact been given. In this final section, I seek to address a few of these loose ends.

A particularly apparent omission relates to the role and position of strategy in the proposed theory. For surely, the idea that organizational structures (including control structures) and strategy are interconnected has been a recurrent theme in the literature at least since Chandler's seminal work (Chandler, 1962). To capture this interconnectedness, it may be productive to assume that strategy affects the attributes of the activities in which the organization engages, which in turn affect the control problems that need to be dealt with and the relative efficiency of alternative control configurations. This seems intuitively plausible. It is also an approach with some history in the literature. For instance, Jones & Hill (1988) argue that different growth strategies (unrelated diversification, vertical integration, and related diversification) are associated with different kinds of interdependencies[9] (pooled, sequential, reciprocal), which need to be controlled in different ways. Similar ideas can be found in Hill & Hoskisson (1987) and in Hill et al. (1992). Further work along these lines may well pay off. An interesting aspect of this approach is that one can postpone discussion of the awkward issue of the specific direction of the relation between strategy and control, i.e. whether structure follows strategy (the traditional position) or vice versa, that structure is (also) an antecedent of strategy (cf. for instance Burgelman, 1991; Simons, 1995).

Another candidate for further development relates to the rather shallow notion of human behavior from which this paper works. The assumptions of bounded rationality and opportunism hardly even begin to capture the drives and motives of human behavior, and neglect much of the characteristics generally held to be valuable in understanding human agency. The need for recognition and respect, the desire to belong, the wish to trust and be trusted –to name but a few factors that 'everybody knows' to be important- play no explicit role in the

[9] Which I subsume –provisionally- under uncertainty; see section 3.3.

explanations offered. Also, the proposed theory treats human behavior as atomistic, underplaying the influence of social context and interaction and representing an undersocialized view of human action (Granovetter, 1985). The consequences of this are potentially far-reaching, because MC operates within an intricate network of social relations, and it is at least plausible to assume that the functioning of MC is somehow conditioned by these relations, and vice versa. However, although the social is plainly underdeveloped in the theory as it now stands, it does not actually ignore social mechanisms and processes altogether. Rather, it reinterprets mechanisms that are usually considered to belong to the domain of the social in economic terms. The examination of exploratory control for instance stresses the effects of cooperation, mutual dependency, and personal relations; phenomena that would certainly qualify as social. The effects of these phenomena (such as the increased propensity to cooperate, the pressure to perform, and the emergence of a lenient atmosphere), however, are attributed to (economic) self-interest. This, of course, meets uneasily with common knowledge. In a way, the social is being abducted by economics. But then, the effects themselves are not contrary to common experience. Assuming that these effects as such are satisfactorily dealt with in the approach in its current state of development, incorporating the social in the theory would be a refinement rather than an extension. Such a refinement would still be important, though, for it would increase the causal articulation of the approach, improving the insights it provides in the causal processes and mechanisms at work (Mäki, in press). Also, it would align the explanation more closely with common sense.

A last remark of a theoretical nature regards the functionalist nature of the theory: it seeks to explain control with reference to efficiency, but it does not actually specify the causal mechanisms that give rise to efficient alignments. This is a gap that the theory shares with its intellectual ancestor TCE. It is also a rather innocent gap that can temporarily be accepted as long as the functional reasoning is merely used to provide a stepping stone on the way to full explanatory theorizing (Jackson, 2002).

Refinement and further development are, of course, only worthwhile if the theory has any significant empirical merit. Supposing that it does, the perspective appears to have practical value, too. One advantage of configurational approaches is that their ideal types can serve as mental models that can guide analysis and evaluation of actual organizations. Even the most outspoken opponents of configurational thinking are willing to grant that (cf. Donaldson, 2001). And this is precisely where the value of the proposed theory is located for most practical purposes. The ideal types as such are not ideal in a normative sense. Because the theory only purports to cover those factors that vary systematically over larger populations, it does not supply any hard prescriptions as to how to configure the control structures in a specific real life situation. In such specific instances, there is usually a whole host of specific factors to take into account –the effects of which may well be more important in that individual situation than the effects of the general factors. Nevertheless, the theory offers a general and broadly applicable frame of reference to support a systematic analysis of control problems, and that provides systematic clues as to the direction in which to search for solutions.

References

Abernethy, M.A., & Chua, W.F. 1996. A field study of control system "redesign": the impact of institutional processes on strategic choice. *Contemporary Accounting Research*, 13: 569-606.

Burgelman, R.A. 1991. Intraorganizational ecology of strategy making and organizational adaptation: Theory and field research. *Organization Science*, 2: 239-262.

Burns, T., & Stalker, G.M. 1961. *The management of innovation*. London: Tavistock Publications.

Chandler, A.D. 1962. *Strategy and structure: chapters in the history of the industrial enterprise*. Cambridge: The M.I.T. Press.

Chenhall, R.H. 2003. Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, 28: 127-168.

Colbert, G.J., & Spicer, B.H. 1995. A multi-case investigation of a theory of the transfer pricing process. *Accounting, Organizations and Society*, 20: 423-456.

Covaleski, M.A., Dirsmith, M.W., & Samuel, S. 2003. Changes in the institutional environment and the institutions of governance: extending the contributions of transaction cost economics within the management control literature. *Accounting, Organizations and Society*, 28: 417-441.

Dekker, H.C. (in press), Control of inter-organizational relationships: evidence on appropriation concerns and coordination requirements. *Accounting, Organizations and Society*.

Dess, G.G., Newport, S., & Rasheed, A.M.A. 1993. Configuration research in strategic management: Key issues and suggestions. *Journal of Management*, 19: 775-795.

Donaldson, L. 1996. *For positivist organization theory: Proving the hard core*. London: Sage Publications.

Donaldson, L. 2001. *The contingency theory of organizations*. Thousand Oaks: Sage Publications.

Doty, D.H., & Glick, W.H. 1994. Typologies as a unique form of theory building: Toward improved understanding and modeling. *Academy of Management Review*, 19: 230-251.

Doty, D.H., Glick, W.H., & Huber, G.P. 1993. Fit, equifinality, and organizational effectiveness: A test of two configurational theories. *Academy of Management Journal*, 36: 1196-1250.

Drazin, R., & Van de Ven, A.H. 1985. Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 30: 514-539.

Fisher, J. 1995. Contingency-based research on management control systems: categorization by level of complexity. *Journal of Accounting Literature*, 14: 24-53.

Flamholtz, E.G. 1983. Accounting, budgeting and control systems in their organizational context: theoretical and empirical perspectives. *Accounting, Organizations and Society*, 8: 153-169.

Flamholtz, E.G. 1996. *Effective management control: theory and practice*. Boston: Kluwer Academic Publishers.

Galbraith, J. 1973. *Designing complex organizations*. Reading: Addison-Wesley Publishing Company.

Granovetter, M. 1985. Economic action and social structure: the problem of embeddedness, *The American Journal of Sociology*, 91: 481-510.

Helliar, C. 1998. *Management control of the treasury function*. Paper presented at the annual conference of the British Accounting Association, Manchester.

Hill, C.W.L., & Hoskisson, R.E. 1987. Strategy and structure in the multiproduct firm. *Academy of Management Review*, 12: 331-341.

Hill, C.W.L., Hitt, M.A.,, & Hoskisson, R.E. 1992. Cooperative versus competitive structures in related and unrelated diversified firms. *Organization Science*, 3: 501-521.

Hofstede, G. 1981. Management control of public and not-for-profit activities. *Accounting, Organizations and Society*, 6: 193-211.

Holmstrom, B., & Milgrom, P. 1994. The firm as an incentive system. *American Economic Review*, 84: 972-991.

Hopwood, A.G. 1983. On trying to study accounting in the contexts in which it operates, *Accounting, Organizations and Society*, 8: 287-305.

Jackson, W.A. 2002. Functional explanations in economics: A qualified defence. *Journal of Economic Methodology*, 9: 169-189.

Jensen, M.C., & Meckling, W.H. 1992. Specific and general knowledge, and organization structure. In L. Werin, & H. Wijkander (eds.), *Contract economics*: 251-274. Oxford: Basil Blackwell.

Jones, G.R. 1984. Task visibility, free riding, and shirking: Explaining the effect of structure and technology on employee behavior. *Academy of Management Review*, 9: 684-695.

Jones, G.R., & Hill, C.W.L. 1988. Transaction cost analysis of strategy-structure choice. *Strategic Management Journal*, 9: 159-172.

Keating, P.J. 1995. A framework for classifying and evaluating the theoretical contributions of case research in management accounting. *Journal of Management Accounting Research*, 7: 66-86.

Machin, J.L.J. 1983. Management control systems: whence and wither? In T. Lowe, & L.J. Machin (Eds.), *New perspectives in management control*: 22-42. New York: St. Martin's Press.

Machlup, F. 1978. *Methodology of economics and other social sciences*. New York: Academic Press.

Mäki, U. (in press). Theoretical isolation and explanatory progress: Transaction Cost Economics and the dynamics of dispute. *Cambridge Journal of Economics*.

Marginson, D.E.W. 1999. Beyond the budgetary control system: towards a two-tiered process of management control. *Management Accounting Research*, 10: 203-230.

Merchant, K.A. 1982. The control function of management. *Sloan Management Review*, Summer: 43-55.

Merchant, K.A. 1985a. Organizational controls and discretionary program decision making: A field study. *Accounting, Organizations and Society*, 10: 67-85.

Merchant, K.A. 1985b. *Control in business organizations*. New York: Ballinger Publishing Company.

Meyer, A.D., Tsui A.S., & Hinings, C.R. 1993. Configurational approaches to organizational analysis. *Academy of Management Journal*, 36: 1175-1195.

Miles, R., & Snow, C. 1978. *Organizational strategy, structure and process*. New York: McGraw-Hill.

Milgrom, P., & Roberts, J. 1990. The economics of modern manufacturing: Technology, strategy, and organization. *American Economic Review*, 80: 511-528.

Milgrom, P., & Roberts, J. 1995. Complementarities and fit: Strategy, structure, and organizational change in manufacturing. *Journal of Accounting and Economics*, 19: 179-208.

Miller, D. 1986. Configurations of strategy and structure: Towards a synthesis. *Strategic Management Journal*, 7: 233-249.

Miller, D. 1999. Notes on the study of configurations. *Management International Review*, 39 (special issue): 27-39.

Miller, D., & Friesen, P.H. 1984. *Organizations: A quantum view*. Englewood Cliffs: Prentice Hall.

Miller, D., & Mintzberg, H. 1983. The case for configuration. In G. Morgan (ed.), *Beyond method: Strategies for social research*: 57-73. Beverly Hills: Sage Publications.

Mintzberg, H. 1983. *Structures in fives: designing effective organizations*. Englewood Cliffs: Prentice Hall.

Moores, K., & Yuen, S. 2001. Management accounting systems and organizational configuration: a life-cycle perspective. *Accounting, Organizations and Society*, 26: 351-389.

Otley, D.T. 1980. The contingency theory of management accounting: achievement and prognosis. *Accounting, Organizations and Society*, 5: 413-428.

Otley, D.T. 1984. Management accounting and organization theory: A review of their interrelationship, in R.W. Scapens, D.T. Otley, & R.J. Lister (eds.), *Management Accounting, Organizational Theory and Capital Budgeting: Three Surveys*: 96-164. London: Macmillan Press.

Otley, D. 1999. Performance management: a framework for management control systems research. *Management Accounting Research*, 10: 363-382.

Otley, D.T., & Berry, A.J. 1994. Case study research in management accounting and control. *Management Accounting Research*, 5: 45-65.

Ouchi, W.G. 1977. The relationship between organizational structure and organizational control. *Administrative Science Quarterly*, 22: 95-113.

Ouchi, W.G. 1979. A conceptual framework for the design of organizational control mechanisms. *Management Science*, 25: 833-848.

Ouchi, W.G. 1980. Markets, bureaucracies, and clans. *Administrative Science Quarterly*, 25: 129-141.

Rindfleisch, A., & Heide, J. 1997. Transaction cost analysis: past, present and future applications. *Journal of Marketing*, 61(October): 30-54.

Rotch, W. 1993. Management control systems: one view of components and their interdependence. *British Journal of Management*, 4: 191-203.

Selto, F.H., Renner, C.J., & Young, S.M. 1995. Assessing the organizational fit of a just-in-time manufacturing system: Testing selection, interaction and systems models of contingency theory. *Accounting, Organizations and Society*, 20: 665-684.

Shelanski, H.A., & Klein, P.G. 1995. Empirical research in transaction cost economics: A review and assessment, *Journal of Law, Economics, and Organization*, 11: 335-361.

Simons, R. 1987. Planning, control, and uncertainty: A process view, in: W.J. Bruns, & R.S. Kaplan (eds.), *Accounting and management: Field study perspectives*. Boston: Harvard Business School Press, 339-362.

Simons, R. 1995. *Levers of control: how managers use innovative control systems to drive strategic renewal*. Boston: Harvard Business School Press.

Snell, S.A. 1992. Control theory in strategic human resource management: The mediating effect of administrative information. *Academy of Management Journal*, 35: 292-327.

Speklé, R.F. 2001. Explaining management control structure variety: a transaction cost economics perspective. *Accounting, Organizations and Society*, 26: 419-441

Spicer, B.H., & Ballew, V. 1983. Management accounting systems and the economics of internal organization. *Accounting, Organizations and Society*, 8: 73-96.

Thompson, J.D. 1967. *Organizations in action*. New York: McGraw-Hill.

Tiessen, P., & Waterhouse, J.H. 1983. Towards a descriptive theory of management accounting. *Accounting, Organizations and Society*, 8: 251-267.

Van den Bogaard, M.A., & Speklé, R.F. 2003. Reinventing the hierarchy: Strategy and control in the Shell Chemicals carve-out. *Management Accounting Research*, 14: 79-93.

Van der Meer-Kooistra, J. 1994. The coordination of internal transactions: the functioning of transfer pricing systems in the organisational context. *Management Accounting Research*, 5: 123-152.

Van der Meer-Kooistra, J., & Vosselman, E.G.J. 2000. Management control of interfirm transactional relationships: the case of industrial renovation and maintenance. *Accounting, Organizations and Society*, 25: 51-77.

Vosselman, E.G.J. 2002. Towards horizontal archetypes of management control: a transaction cost economics perspective. *Management Accounting Research*, 13: 131-148.

Williamson, O.E. 1975. *Markets and hierarchies: analysis and antitrust implications*. New York: Free Press.

Williamson, O.E. 1985. *The economic institutions of capitalism*. New York: Free Press.

Williamson, O.E. 1996. *The mechanisms of governance*. New York: Oxford University Press.

Williamson, O.E. 1999. Strategy research: governance and competence perspectives. *Strategic Management Journal*, 20: 1087-1108.

Figure 1: Archetypes of control and their habitat

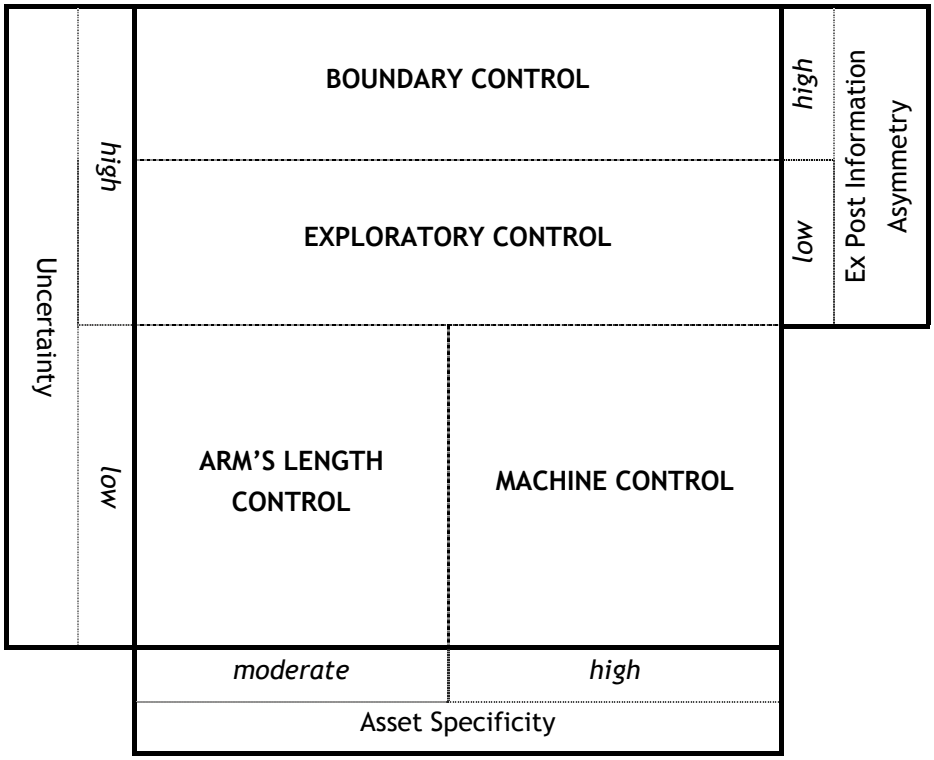

Table 1: Characteristics of the control archetypes

	Arm's Length Control	Machine Control (Action Oriented)	Machine Control (Result Oriented)	Exploratory Control	Boundary Control
Structure	Relative autonomy; involvement higher level management limited long as performance is satisfactory	Well-defined tasks; strict hierarchy; limited room for discretionary behavior	Decentralized with clearly defined areas of responsibility and accountability	Relatively flat hierarchy; fluid and permeable matrix-like project structures; vague responsibilities	Relative autonomy within defined boundaries
Standardization	Market-related outcome requirements; external performance benchmarks	Standardization of behavior; detailed rules, norms, and instructions	Predefined performance targets of administrative origins	No ex ante standards and targets; 'do your best'; emerging standards	Proscriptive codes of conduct; boundary systems; emphasis on behavior to be avoided
Monitoring and performance evaluation	Performance assessment relative to 'the market'	Monitoring and supervision to ensure compliance to norms and standards	Monitoring focused on target achievement; performance assessment relative to targets	Based on emerging standards; subjectively assessed contributions to long term organizational performance	Focused on compliance; observance of interdictions; external audits
Reward & incentive structure	Performance dependent bonuses	No direct link between performance and rewards	Performance dependent bonuses	Career prospects dependent on long term past performance; peer pressure	Emphasis on threat of punishment of rule-breaking behavior; tie-in through 'hostages'

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