



# An empirical analysis of the levers of control framework

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## Abstract

The purpose of this paper is to use the levers of control framework to explore the antecedents of control systems – various facets of strategy that drive the use of controls; to explore the relations among control systems; and to explore the costs and benefits of control systems – costs in terms of consumption of a constrained resource (i.e., management attention) and benefits (i.e., learning). Using data from a survey of 122 Chief Financial Officers, this study tests a structural equation model that relates strategic risk and uncertainty to control systems (i.e., beliefs, boundary, diagnostic, and interactive control systems), which in turn are hypothesized to affect learning and attention, and ultimately firm performance. The evidence suggests that there are multiple inter-dependent and complementary relations among the control systems. I find that strategic risk and uncertainty drive both the importance and use of performance measures in diagnostic or interactive roles. Moreover, it appears that in certain strategic conditions information processing needs are such that firms use performance measures both interactively and diagnostically. Finally, I conclude that although there is a cost of control, there is a positive effect on firm performance.

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## Introduction

The purpose of the management control system (MCS) is to provide information useful in decision-making, planning, and evaluation (Merchant & Otley, 2006). While the management accounting literature is replete with studies that investigate control systems, many focus on only one control such as the use of performance measures (Ittner & Larcker, 1998). However, it is well-recognized that

the MCS is comprised of multiple control systems that work together (Otley, 1980). Simons (2000), in his levers of control (LOC) framework, posits that four control systems – beliefs (e.g., core values), boundary (e.g., behavioral constraints), diagnostic (e.g., monitoring), and interactive (e.g., forward-looking, management involvement) – work together to benefit a firm. The LOC framework asserts that strategic uncertainty and risk drive the choice and use of control systems, which in turn, impact the organization through organizational learning and the efficient use of management attention (Simons, 2000). The theoretical framework is illustrated in

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**Fig. 1.** The purpose of this paper is to use the LOC framework to investigate the antecedents of control systems (i.e., strategic uncertainty and risk); the associations among the control systems; and the costs and benefits of control systems (management attention, learning, and firm performance).

Using data from a survey of 122 Chief Financial Officers (CFOs), I perform a three-stage analysis. First, I estimate a trimmed structural equation model (SEM) based on Fig. 1, which provides evidence on the holistic LOC framework. Second, I use coefficients from the trimmed SEM to provide evidence on three sets of hypotheses: (1) the relations among the control systems, (2) the relations between both strategic risk and uncertainty and each of the control systems, and (3) the relations between each of the control systems and outcomes (i.e., attention, learning, and performance). Finally, since the existence of a well-fitting SEM does not ensure that it is the *only* appropriate model (Kline, 1998), I generate six alternative models for comparison against the base model.

This study makes several contributions to the literature. First, it is generally well-accepted that control systems are inter-dependent (Milgrom & Roberts, 1995); however, it is unclear whether they are complements or substitutes. This study finds that when firms emphasize the beliefs system, they also emphasize each of the three other control systems. In addition, the use of performance measures in the interactive system is associated

with the use of performance measures in the diagnostic system and emphasis on the boundary system. The evidence suggests that the interdependencies are complementary. Thus, this study provides empirical evidence on the relations among the control systems in the LOC framework and contributes to a small but growing body of work that investigates relations among control systems (e.g., Anderson & Dekker, 2005; Kennedy & Widener, 2006).

Second, this study investigates both costs and benefits of control systems. An assumption in the literature is that firms implement controls only when the benefits received outweigh the costs. However, little evidence exists to support this assumption (e.g., for a review of performance measurement (PM) literature see Ittner & Larcker, 1998). A limitation is that this research often focuses on an aggregate measure of firm performance without delineating specific costs and benefits. A recent study extends the literature and provides evidence that a strategic PM system is associated with a specific benefit (i.e., decreased role stress) (Burney & Widener, 2007); however, the cost of controls is still largely ignored. I find that control systems are associated with both a benefit (organizational learning) and a cost (consumption of management attention); but, overall, have a positive effect on firm performance.

Third, notwithstanding a line of research that has investigated the alignment between strategy

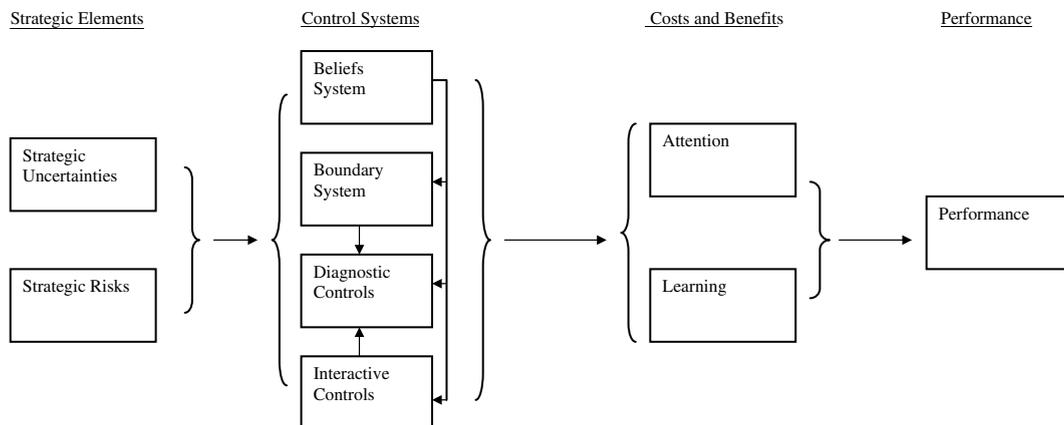


Fig. 1. Theoretical model.

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