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Does management accounting mediate the relationship between cost system design and performance?

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ABSTRACT

This study aimed at investigating the mediating effect of management accounting practices (MAPs) upon the association between cost system design (CSD) and performance. Covariance-Based Structural Equation Model methodology was applied to investigate the complex relationship between the latent constructs. The findings indicated that cost system design alone does not impact firm performance. However, it affects performance via MAPs. We projected that MAPs play a full mediating role between CSD and performance. Thus, this study indicates that incurring high costs for the establishment of a functional cost system might be justifiable, on condition that the firm will utilize the obtained cost data through various decision-making tools; otherwise there is no point in bearing the cost of building such a system.

1. Introduction

Increasing costs, intensifying competition, and declining profit margins are encouraging companies to establish a robust and comprehensive cost system and to implement sophisticated MAPs that assist managerial decision-making. Economic crises also increase the importance and the usage of sophisticated MAPs (Pavlatos & Kostakis, 2015). In this new economic environment, firms are unable to survive by using traditional cost systems that simply calculate the unit cost of products or services; on the contrary, they have to develop a modern cost system with critical attributes that plays an important role in the functioning of management. In doing so, they assume that they will be able to overcome their competitors, and continue as a going concern.

Kaplan and Cooper (1998) asserted that cost systems perform three functions for firms: the valuation of the inventory and the calculation of the cost of goods sold, estimating the costs of activities, products, services, and customers, and providing economic feedback to managers. The first function meets the needs of the external decision-makers by providing data for the periodic balance sheets and income statements. For this function, detailed cost information is not necessary because the aggregate amounts are sufficient. However, the second and third functions meet the needs of the internal decision-makers, in particular, managers, in order to create improved efficiency of operations and, ultimately, the overall profitability of the company.

Management accounting is part of an organization's management control systems (Frezatti, Aguiar, Guerreiro, & Gouvea, 2011), and its role in organizations has evolved from simple bookkeeping to a greater involvement in decision making (Bai & Krishnan, 2012; Walker, Fleischman, & Johnson, 2012). Initially, it was used as a tool for tracking the cost of manufacturing inputs as well as cost calculation and financial control. However, the changing business environment has placed management accounting into a more strategic position in organizations, forcing them to have more sophisticated management accounting systems that enable a more accurate costing (i.e. activity-based costing), a more comprehensive performance evaluation (i.e. balanced scorecard), and value-chain analysis, as well as analysis of customers and competitors. All these sophisticated MAPs require a functional cost system which has certain attributes such as detail, classification, accuracy, variance, and frequency as classified by Pavlatos and Paggios (2009).

Several prior studies have investigated the factors impacting cost system design (CSD) in firms (Abernathy, Lillis, Brownell, & Carter, 2001; Al-Omiri & Drury, 2007; Pavlatos & Paggios, 2009); however, the direct impact of CSD on performance has rarely been investigated (Lee et al., 2010), so far the evidence is inconclusive (Henri, Boiral, & Roy, 2016; Lee, 2003; Pizzini, 2006). This link is significant from the owners' and managers' perspectives, since establishing a comprehensive cost system consumes resources which incurs costs. Thus, in return, managers and owners expect a benefit which is measured by incremental performance. Numerous other studies have focused on the performance effects of management accounting practices (MAPs). In a recent study, Mohamed and Jones (2014) proposed a model which incorporates strategic management accounting tools to predict profitability in Egyptian information and communications technology; indeed they proved this relationship. Another Egyptian study proved that the management accounting system positively affects managerial

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performance in the healthcare industry (Hammad, Jusoh, & Ghozali, 2013). In German hospitals, Lachmann, Knauer, and Trapp (2013) found that the superiority of organizational performance does not result from the mere application of strategic management accounting; rather, it requires an appropriate match of the organizational characteristics with the configuration of strategic MAPs. Duh, Xiao, and Chow (2009) provided empirical evidence about the positive impact of MAPs upon the performance of Chinese firms. Macinati and Pessina (2014) indicated that there is a positive relationship between management accounting use and the financial performance of Italian healthcare organizations. Soobaroyen and Poorundersing (2008) found that four dimensions of the management accounting system (scope, timeliness, aggregation, and integration) positively influence managerial performance.

This study distinguishes itself from prior ones, in particular, by exploring the mediating effect of MAPs between cost system design and firm performance as well as the performance effect of CSD and MAPs. Tse (2011) and Michael (2011) point out the importance of the use of cost information to improve individuals' decision performance. We normally expect an increase in organizational performance as the result of improvement in an individual's performance. In addition, Hutchinson (2010) draws attention to the usage of an appropriate cost accounting system designed to improve performance by the simulation approach, arguing that better decisions are based on accurate cost measurements. Furthermore, some prior studies focus on strategically changing the roles of management accountants. (Goretzki, Strauss, & Weber, 2013; Järvenpää, 2007). Thus, meeting the expectations of organizations requires management accountants to utilize sophisticated methods which require extensive, accurate, and timely cost data. The investigation of this subject is important, since firms continually seek ways to improve their performance. Thus, this study draws the attention of managers to the benefits of establishing a functional cost system and utilization of the cost data provided through this system using MAPs to improve performance. Although aggregate cost data and traditional MAPs are still used by firms, in particular small and medium-sized ones, they are insufficient for today's competitive environment (Lavia López & Hiebl, 2014). Thus, more sophisticated cost and management accounting systems are vital for the successful management of business organizations. Prior studies also point out the scarcity of studies on management accounting systems in developing countries; the present study therefore aims at filling the existing gap in this respect (Lavia López & Hiebl, 2014). Unlike prior studies on cost systems carried out in specific industries such as hospitals (Pizzini, 2006) and hotels (Pavlatos & Paggios, 2009), this study is based upon a sample of diverse industries. Finally, this study utilizes structural equation modeling, which has not been used extensively in past management accounting studies (Cadez & Guilding, 2008). Finally, designing a robust cost system, managing costs, and improving performance are vital for Turkish firms, in particular by intensifying the competitive environment due to the entrances of new local and foreign businesses in the marketplace. Thus, it is anticipated that this paper will help Turkish firms remain competitive.

The elaboration of this subject is important to the country for the following reason: although large corporations are well aware of the need for a functional cost system and the utilization of management accounting tools, it is not so for small and medium-sized enterprises. Their accounting function, like other business functions, is not well developed since its basic focus is on financial accounting, in particular, tax accounting. Thus, their attention should be directed towards the topic. In addition, the partners/managers of these small and medium-sized enterprises are generally family members; they therefore consider accounting information to be both confidential and commercially sensitive. This plays negative role in the development of accounting function including cost and management accounting. This demonstrates a need for studies which will help to raise awareness of cost and managerial accounting among partners/managers and improve the management of their firms.

Finally, although there some prior studies regarding cost and management accounting practices of Turkish enterprises, they are mostly descriptive and exploratory (Uyar, 2009, 2010; Uyar & Bilgin, 2011; Yalcin, 2012). Further studies are needed to investigate the interrelationship between cost system and management accounting, and their effect on firm performance. Thus this study aims at filling this gap.

2. Literature review and hypotheses

2.1. Five attributes of cost system design

This study adopted the critical attributes of CSD from Pavlatos and Paggios (2009) and Pizzini (2006). Pavlatos and Paggios (2009, p. 264) defined cost system functionality as "the quality of cost accounting information which is provided by a cost system", and they provided the following five critical attributes:

- *Detail*: The cost system supplies detailed cost data about cost objects.
- *Variance*: The cost system calculates efficiency and price variances.
- *Accuracy*: The cost system provides the most accurate cost information possible.
- *Frequency*: The cost system supplies reports to managers systematically.
- *Classification*: The cost system disaggregates costs according to behaviors such as variable/fixed, direct/indirect, product/period.

Previously, some studies have investigated the factors driving CSD. It is assumed that the complexity of the production process affects the choice of costing system; firms which have complex production systems are likely to have more a complex costing system (Malmi, 1999). Pavlatos and Paggios (2009) determined that CSD is shaped through several contingent factors. On the other hand, Pizzini (2006) investigated the performance effect of CSD, finding that the managers of US hospitals perceive cost data to be more useful and relevant if the cost system provides more detailed, better classified cost data on a more frequent basis. She found that the more functional cost systems help managers improve some aspects of hospital operations.

2.2. Impact of CSD on MAPs

Pizzini (2006) indicated that managers find cost data useful and relevant if they are detailed, well classified, and provided frequently. This might be explained by the fact that sophisticated MAPs used by managers require updating through a sophisticated cost system providing detailed, classified, and timely data regarding products, services, activities, customers, and units. In this case, a cost system will act as a catalyst for the utilization of MAPs. For example, Al-Omiri and Drury (2007) found that cost system sophistication is positively associated with the extensive use of innovative MAPs. Thus, we formulate the following hypothesis:

H1. CSD has a positive impact on the utilization of MAPs.

2.3. Impact of MAPs on performance

The ultimate purpose for adopting business practices is to contribute to the overall performance of the organization. Thus, the purpose of various MAPs is to improve subunit and overall performance through financial control, planning and controlling of operations, using business resources economically, and the creation of value. Supporting this assertion, Macinati and Pessina (2014) argued that the ultimate purpose of MAPs is to increase organizational performance. Gerdin (2005) also argued that an appropriate combination of frequency as well as the amount of management accounting information use may enhance the performance of the firms. Several prior studies provided empirical evidence supporting the association between MAPs adoption and

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