

# An exploratory study on accounting for quality management in China

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## Abstract

Accounting, managerial accounting in particular, has developed some financial and nonfinancial measures to satisfy the needs for improving quality management in the last two decades. Quality-oriented accounting systems centered by the cost of quality (COQ) reporting and other nonfinancial measures of quality performance have been proven to be an effective tool for quality management in North America and other industrialized countries. This paper presents the results of a survey study on the applicability of the quality-oriented accounting measures under the business environment in China. We found that Chinese business managers and accountants have generally recognized the importance of quality management to firms' survival and growth. There is a general support for applying quality-oriented accounting information to assist quality control and management. However, the traditional nonfinancial measures of quality performance are currently preferred by a majority of the respondents, while the COQ reporting has not yet received sufficient support in practice in the country.

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## 1. Introduction

Quality is vital to firms' operations in the new business environment characterized by high-tech production and global competition. The quality of products or services directly determines firms' profitability, market share and their ability to survive or develop (Berry and Parasurman, 1991; Carr and Tyson, 1992; Rust et al., 1995; Halevy and Naveh, 2000). The importance of quality management has been well recognized in business world since the 1980s. Quality control is one of the major tasks in business management today.

Experience to utilize accounting measures for quality control and management emerged in many firms in North America and other industrialized countries in the last two decades. In particular, the cost of quality (COQ) reporting and application of nonfinancial measures through accounting system have been widely adopted with remarkable achievement in improving firms' operating effectiveness and profitability (Schultz, 1993; Carr, 1995; Sjoblom, 1998; Giakatis and Rooney, 2000). Both financial and non-

financial measurements for quality performance have grown rapidly in management accounting in recent years (Kim and Liao, 1994; Ittner and Larcker, 1995; Anderson and Sedatole, 1998; Leandri, 2001).

We conducted a survey study to investigate the perceptions of accounting's role in quality management and the applicability and potential effectiveness of quality performance measures under the Chinese business environment. We found that, at present, Chinese business managers and managerial accountants have recognized the significance of quality management to firms' survival and development. They were generally supportive of adopting quality-oriented accounting measures in business management in China. However, a substantial portion of the respondents in our survey were short of explicit understanding of COQ reporting and its effects on quality control. Most respondents preferred utilization of the traditional quality performance measurements. This study reveals that there is a need to expand the studies and application of quality-oriented accounting measures, particularly, to have an integrated application of both financial and nonfinancial measures relating to firms' quality performance in China.

Section 2 of this paper presents a summary of previous studies on quality management and the development of accounting measures for quality management centered by COQ reporting and balanced scorecard (BSC) system in the

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literature. The study objectives or study questions are highlighted thereafter, followed by elaborating the survey subjects and data collection process. Then, the analysis of survey results is presented. A brief Discussion and Conclusion section ends this paper.

## 2. Study background

The importance of quality control was first recognized by the Japanese in the 1950s. In the 1960s, business firms in Japan and Europe made huge investments in quality training programs and many of these companies were setting world standards (Hiromoto, 1988; Daniel and Reitsperger, 1991). Market pressure drove companies in other countries to follow suit. Especially firms in North America have significantly expanded quality management efforts in the last two decades. As international competition becomes an important dimension in business life, firms have to strike for new competitive edge. In a globalized competition environment, market share can be won or lost according to how well a firm measures up in terms of quality (Atkinson et al., 1994; Zeithaml, 2000). Many large international companies have also put pressure on their suppliers or trade partners in other countries to adopt and comply with quality standards. The recent interest in quality is gaining momentum around the world (Magrab, 1997; Anderson and Sedatole, 1998; Shah and Mandal, 1999; Garrison and Noreen, 2000; Hall and Tomkins, 2001).

In the management literature, the word of “quality” has various meanings. As examples quality can mean consistency of product, fitness for use, freedom from variation or conformance to customer expectations (Taguchi et al., 1989). However, a widely accepted definition of quality is of conformance to customer expectations in terms of product/service performance or features. If a product functions in the way intended by the designer as promised by the product specifications then the goal of conformance quality is met. The critical ingredient is the product design. Design failure results in lost sales. Lost sales is a significant opportunity cost to firms’ profitability (Taguchi et al., 1989; Anderson and Sedatole, 1998; Halevy and Naveh, 2000).

With respect to quality management, business accountants are able to play an active part. An important role of management accounting system is to process and convert operational data into useful information that could serve a variety of management needs (Anthony, 1989). The operation of quality control would be facilitated by the information input of accounting measurement and reporting (Simpson and Muthler, 1987; Ostrenga, 1991; Anderson and Sedatole, 1998). Under new business environment, quality-oriented accounting information is pivotal to proper functioning of a quality control system because it shows management both the types of quality cost a company is incurring as well as the dollar amount and trend of the costs

of quality (Morse et al., 1987; Campanella, 1990). In fact, quality-oriented information, both financial and nonfinancial, can be used to flag quality problems, to select and prioritize quality improvement projects and to choose corrective actions (Sjoblom, 1998; Giakatis and Rooney, 2000).

Accountants are mainly concerned with the costs of not meeting the designed specifications. These are the costs associated with the quality of conformance or nonconformance. The costs of quality (COQ) can be broadly categorized into four categories: prevention costs, appraisal costs, internal failure costs and external failure costs, based on the economics framework developed by quality experts (Feigenbaum, 1983; Taguchi et al., 1989; Can and Erel, 2000). As practically usable, quality costs are usually expressed in both absolute dollar amount and relative terms in relation to the level of sales in a given period. It is widely accepted that an inverse relationship exists between quality of conformance and quality costs. When the quality of conformance is low total quality cost is high especially in terms of the internal and external failure costs. By spending on prevention and appraisal costs, internal and external failure costs can be significantly reduced (Morse et al., 1987; Ostrenga, 1991; Carr and Tyson, 1992; Youde, 1992; Hansen and Mowen, 1997; Shah and Mandal, 1999; Can and Erel, 2000).

Prevention costs are spending on quality engineering, technical support and training to ensure that the design specifications are met. The benefits of prevention costs include enhanced quality and lower operating costs. Appraisal costs are the costs incurred in detecting the defective products before they reach customers. Internal failure costs are the costs incurred as a consequence of identifying defective products during the appraisal process, such as scrap, costs of rework on defective products and downtime caused by the defects. External failure costs occur when defective products have been delivered to customers, such as warranty costs of repairs and replacements, product recall and any costs stemmed from legal actions taken by customers. External failure costs will seriously hurt a firm’s reputation and profitability. According to the theory of COQ, external failure costs include also the opportunity costs that may not appear explicitly in accounting records. Hence external failure costs are usually the most substantial part of the total costs of quality (Nandakumar et al., 1993; Ittner, 1996; Garrison and Noreen, 2000). This is not just because of the huge magnitude in the amount of external failure costs that might incur but also the actual and potential losses in a firm’s sales or profits due to poor quality of product or services it provided.

Quantification of quality costs can assist managers to comprehend the financial consequences of quality and arm them with information for making better strategic decisions in quality control and management (Simpson and Muthler, 1987; Albright and Roth, 1992; Sjoblom, 1995; Anderson and Sedatole, 1998). Previous studies in North America

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