



# The Taiwan national quality award and market value of the firms: An empirical study

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## ABSTRACT

The effect of national quality awards on the market value of the award-winning companies is an ongoing study in many countries, but relevant studies are difficult to find in Taiwan. This study empirically examines the market valuation of firms that undergo effective quality improvement programs (sometimes referred to as Total Quality Management or TQM). We use the Taiwan National Quality Award as the indicator that an effective quality improvement program has been implemented. We use event study methodology to measure the stock price effects of quality award announcements. The component attributed to firm-specific events is typically referred to as the abnormal return. Our results show that the abnormal return reacted positively to quality award announcements, but this positive reaction did not occur on the announcement day. We then increased the number of event days and micro-analyzed the individual award winners. These additional days enabled us to examine whether or not the risk of the firm changed after winning a quality award. Our micro-analysis revealed that 75% of the award winners experienced positive average abnormal returns, indicating that the implementation of an effective quality improvement program could provide a long-term return to the market value of firms.

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## 1. Introduction

In the last decade, many firms have been challenged by products of superior quality produced by their competitors. All of these companies have responded to the challenge by embracing a broader view of quality. Marketers have renewed their interest in the customer's perceptions of quality, and so quality issues have become a top priority in many companies (Thoumy and Vachon, 2012). Practitioners and academics have proposed many new quality management systems and have demonstrated a variety of technical and organizational approaches, including the use of statistical techniques, changes in organizational culture, and employee education (Parast and Adams, 2012). In many companies, total quality management (TQM) is the approach used to meet the quality needs and expectations of its financial stakeholders, its customers, and the community in which it operates. Companies and governments have recognized the emergence of quality consciousness worldwide, and that quality is crucial in gaining a competitive

advantage internationally. This has led many companies to seek guidance in implementing their quality programs. National quality awards (NQAs) are a means by which countries can promote quality awareness at a national level (Tan, 2002).

Since 1988, when the Malcolm Baldrige National Quality Award (MBNQA) was first presented, many other countries have developed or are in the process of developing their own quality award programs. The Deming Prize in Japan, the European Quality Award (EQA) in Western Europe and the MBNQA in USA have all played a key role in the quality revolution. The Taiwan National Quality Award was established in 1990. Its aim is to contribute to radical reform and competitiveness of local companies by improving quality, reducing costs, and improving productivity, by sharing success stories. In the past 20 years, 113 companies have won the Taiwan National Quality Award. Through the winners' sharing their successful experiences, many companies have seen a significant improvement in their customer satisfaction levels, and in their financial performance.

A question often asked among quality specialists is whether companies that receive quality awards actually perform better than others. This issue has been of major concern since the MBNQA was first presented in 1988 (Bergquist and Ramsing, 1999). Hendricks and Singhal (1996, 1997) examined the market

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value of firms that have won quality awards. They tried to investigate empirically the impact of winning a quality award on the market value of firms by estimating the mean abnormal change in the stock prices of a sample of firms on the date when information about winning a quality award was publicly announced. Adams et al. (1999) extended Hendricks and Singhal's research and found that management, owners, and analysts should be cautious about expecting an abnormal return when a firm wins a quality award. In Asia, Suh and Lee (2000) developed the Korean Quality Award Index, based on the Baldrige Index of NIST (National Institute of Standards and Technology) in the USA, to compare the performances of quality-award-winning companies in the stock market with those of the market index in both countries. They wanted to understand the effects of quality management awards on stock price movement and to examine the comparative advantages of the quality award systems in Korea and the USA.

Specifically, in Hendricks and Singhal's (1996) work, they examined three issues related to the market valuation of companies which implement effective quality improvement programs by using quality awards as indicators. First, their research examined the stock market's reaction to the winning of quality awards by estimating the abnormal change in the stock prices on the day of the announcement. Second, they examined whether the risk of the company changes after winning of a quality award. Third, they examined the abnormal stock price behavior from three years before to one year after the winning of quality awards. In this study, we follow their research, and we apply the event study and use the Taiwan National Quality Award as the indicators (that an effective quality improvement program has been implemented) to measure the stock price effects of quality award announcements. Besides, the component attributed to firm-specific events is typically referred to as the abnormal return. We increased the number of event days and micro-analyzed the individual award winners. The additional days enabled us to examine whether or not the risk of the firm changed after winning a quality award. We investigated whether the implementation of an effective quality improvement program provides a long-term return to the market value of firms.

In the next section we discuss the related literature, and in Section 3 we develop our hypotheses. We discuss our methodology and empirical analysis in Sections 4 and 5. In Section 6 we summarize our findings.

## 2. Literature review

### 2.1. Total quality management

Since 1900, the development of the concept of quality has evolved from the quality of product inspection, manufacturing, and design, through to an emphasis on utilizing statistical tools for quality control and quality assurance (Beutel and Minner, 2012). After that, the concept of total quality control (TQM) was emphasized to improve company-wide quality management. TQM is a systematic quality improvement approach to company-wide quality management, for improving quality, productivity, customer satisfaction, and profitability (Sadikoglu and Zehir, 2010). In recent years, TQM has emphasized the importance of leadership from top management, as well as the construction of internal communication and management systems, to establish a consensus on quality from all employees, and perhaps even to make that quality become a culture in the company. TQM means the implementation of an effective quality improvement program that moves away from the philosophy of using inspection to eliminate defective products, and toward a philosophy of preventing defects from occurring in the first place. The principles, procedures, and

steps required to achieve this include commitment from top management, improved communication between management and workers, training and education, higher employee involvement, continuous process improvement, statistical process control, developing long term relationships with quality suppliers, and a genuine focus on quality throughout the entire company (Hendricks and Singhal, 1996).

TQM is a philosophy intended to improve the welfare of all stakeholders, and which includes customers and employees. When quality is improved, a company enlarges its market share and thus benefits. Recently, concerns have been raised about whether TQM programs have generated real economic gains or improvements in operating performance (Hendricks and Singhal, 1997; Corredor and Goñi, 2011). The successful implementation of TQM increases sales, reduces costs and increases cash flow or raises the stock price in the market (Crosby, 1979). Easton and Jarrell (1998) held that the profits of a company come from the increasing returns of the stock price in the market. It is thus important to implement TQM programs, since a successful TQM program can influence the market value of a company.

### 2.2. National quality award

NQAs are developed to promote improvements in the quality programs of enterprises, organizations, and businesses. The aim of NQAs is to promote quality awareness, to understand what is required for quality excellence, and to share information on successful strategies and their benefits. The primary objective of NQAs is the identification of role models for other organizations to follow (Tan, 2002). NQAs are administered mostly by government statutory bodies, with participation of judges and examiners from both public and private business organizations. NQAs typically contain from seven to ten examination criterias and a further twenty to thirty sub-criterias. Candidates are encouraged to use these criteria to execute a self-assessment process to find out the weakness in their quality management system and to formulate an improved operational framework. Eventually, NQAs will be recognized as a nation or organization's highest accolade for achievement in quality management practices.

The Taiwan National Quality Award (TNQA) was developed in 1990, as part of Taiwan's national quality strategy to ensure that quality systems are developed in line with international standards, and to secure overseas recognition of Taiwan's quality capabilities. There are four categories which encourage participants to pursue excellence in quality management: the enterprise award, the small and medium enterprise award, the organization award, and the individual award. Eight main examination criterias are contained in the TNQA, and applicants receive a comprehensive and thorough examination from the leading consultants, practitioners, and academics who make up the award site-visit examiner teams. A feedback report is provided to suggest what they can do to comply with the criteria. The TNQA plays an important role in promoting and rewarding excellence in organizational performance in Taiwan.

### 2.3. Conformance quality

There is a lot of evidence to suggest that the company that produces products of higher conformance quality than other companies which produce similar products will be more competitive in the market (McGuire and Dilts, 2008). A positive relationship exists between quality and market share. This can be proven by applying the data from PIMS (Profit Impact of Marketing Strategies) (Buzzell and Wiersema, 1981; Gale and Branch, 1982; Phillips et al., 1983; Robinson and Fornell, 1985). In the 1970s, the companies with improved quality increased their share five to six times faster than companies which declined in quality, and three times faster

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