



# The Financial Value of Design Management

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## Abstract

**Background** The non-financial values of design management in the perspective of business administration have actively been explored. However, the financial values of an effective design management have received relatively less attention. This paper seeks to find the economic evidence that design management contributes to increased corporate performance.

**Methods** T statistics were conducted on twelve financial ratios spanning across four evaluation categories of financial health, activity, growth, and profitability with subjects of fifty companies that have formally been recognized for their successful practice of design management. Since these subjects belong to diverse industry sectors, their financial ratios were normalized with respect to their industry average using an industry-adjusted approach developed by the author.

**Results** Current ratio, quick ratio, asset turnover ratio, and receivables turnover ratio of the design management effective companies were found to be significantly higher than their respective industry with a 0.05 confidence level. Furthermore, their revenue growth rate and operating margin were found to be significantly higher than their respective industry with a 0.1 confidence level.

**Conclusions** An objective, statistical significance has been found that design management effectiveness contributes to financial stability and increased efficiency in asset management as well as to growing marketability and revenue generation.

**Keywords** Design Management, Financial Analysis, Industry-adjusted Approach

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## 1. Introduction

Amidst the changes of the times that revolutionized industries and technologies, the trend of consumption has also evolved from that of “product” to that of “value.” To cope with such transition, businesses began to seek design-centered management structures that increase their competitiveness in the value perceived by their consumers. Today, the concept of design management has become an essential strategy in the scope of business administration. Design, which has been limited to involve only the outward appearance of products in the past, has now grown to play a key role in business innovation.

The purpose of this research is to find the evidence of the economic value of design management through financial analyses of companies that practice effective design management. Previous studies in this line of research have predominantly used qualitative methods. However, by employing a quantitative method, the value of design management will be better delivered to, communicated with, and shared across diverse communities, especially those that react better to objective numbers. Further, considering that design management is now heavily practiced in almost all industries, developing an analysis tool that analyzes businesses of various industries with identical standards will greatly expand the research landscape that has previously been limited due to industry-specific characteristics.

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## 2. Theoretical Review

The value of design to a business is now universally recognized as one of the key competitive differentiators. The traditional perception of design as a mere form-giving activity has become obsolete as businesses began to grasp on the importance of effectively incorporating design throughout the entire business realm. So came the concept of *design management*. The term was first coined by Michael Farr (1966), who defined it as “the function of defining a design problem, finding the most suitable designer, and making it possible for him to solve it on time and within a budget.” That is, the earliest perception of design management merely dealt with the actual role of designers within a firm.

Since then, the definition and the scope of design management have expanded with the evolving business environment. For instance, Kotler and Rath (1984) recognized that design can “optimize customer satisfaction and company profitability and value.” Blach and Blach (1993) defined the concept as “identifying and communicating ways that design can contribute strategic value to a company.” More recently and domestically, Kim et al. (2008) defined the term as “planning and operating systems to effectively develop and manage design for administration of design-centric firms [translated],” Jung (2008) defined it as “the knowledge system for managers, designers, and experts of related fields to achieve and develop organizational goals and culture through creation of new visions and values by using design as a business strategy [translated],” and Choi and Park (2011) defined it as “a business structure that seeks to increase financial and non-financial corporate performance by utilizing design as a business strategy [translated].” Collectively, this paper views design management as the activity of realizing the strategic value of design in a firm in reaching its financial and non-financial organizational goals.

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## 3. Research Method

### 3. 1. Selection of Research Subjects

This paper seeks to find concrete, financial values of design management. To do so, a carefully selected set of companies with effective design management is needed in order to compare their financial data to the standard average. This task was done by utilizing the list of Korea Design Award recipients.

Korea Design Award was first established in 1999 by the Korea Institute of Design Promotion and the Ministry of Trade, Industry and Energy of South Korea. The purpose of the award is to raise the awareness of the importance and the value of design by recognizing business enterprises, local governments, and individuals who contributed to the enhancement of national competitiveness by employing design as a strategic tool. Awards of three categories are given every year: design management, local government, and individual contribution.

In specific, the recipients of the design management awards are first recommended by the internal screening committee comprised of experts of design academia, industry, organizations, and governments. The recommended candidates are then evaluated by the judging committee of the Ministry of Trade, Industry and Energy, after which the finalists are selected by the Minister. The three screening criteria of the design management award are specified in Table 1.

Table 1 Screening criteria of Korea Design Award – design management

Screening Criteria	Items
Ideology and strategy of design management	<ul style="list-style-type: none"> <li>- Design management mind and contribution of CEO</li> <li>- Establishment degree of design management</li> <li>- Short- and long-term design management strategies</li> </ul>
Design management activities	<ul style="list-style-type: none"> <li>- Status of design-related investments</li> <li>- Appropriateness of design development system</li> <li>- Degree of collection, analysis, and use of design knowledge</li> <li>- System of development and management of designers</li> <li>- System of protection and management of design</li> </ul>
Design management performance	<ul style="list-style-type: none"> <li>- Design performance</li> <li>- Result and growth of design management</li> <li>- Competitiveness in domestic and global markets</li> </ul>

Since 1999, the Korea Design Award presented a total of 128 awards in the design management category. Among them, six second-time recipients have been combined and 72 have been removed because they are not listed (67 have never been listed and 5 have been delisted). The remaining 50 will serve as the leading design management sample in the analyses of this research. They span across various industries, including automotive, construction, steel, distribution, bank, telecommunication, IT service, electronics, furniture, food, fashion, and cosmetics—a fact that requires a pre-adjustment process of financial data to be analyzed on the same ground. This is explored in the following section.

### 3. 2. Industry-Adjusted Approach

It is critical to note that these companies span across various industries because there clearly exist industry-specific characteristics that restrict any direct analysis of companies that belong to different industry sectors. That is, a financial ratio of a company cannot be interpreted with absolute standards but must be interpreted with consideration of the levels of low and high as regarded in the industry to which the company belongs. This is why the most widely used and reasonable investment analysis method involves measuring a firm's performance against its industry peer group.

To overcome such issue, all financial data used in this research have been normalized with respect to each industry average. The calculation method is as follows. For each financial ratio of a company, the ratio is industry-adjusted by subtracting the industry average from the company ratio and dividing the result by the absolute value of the industry average.

$$\text{Industry-adjusted company ratio} = \frac{\text{company ratio} - \text{industry average}}{\text{abs (industry average)}}$$

The resulting ratio may be interpreted as to the extent to which the company outperformed or underperformed its respective industry by observing whether the adjusted ratio is positive or negative, respectively. After all financial ratios are prepared through such industry normalization, one-tailed t

statistics was conducted to test the research hypothesis that companies that are effectively practicing design management are also realizing its economic value. All financial data were retrieved on May 17<sup>th</sup>, 2019, from investing.com. The industry averages were collected also on the same date from the financial statistics system of the Bank of Korea using its industry index.

H<sub>0</sub>. Design management effective companies did not perform significantly better than their respective industry.

H<sub>a</sub>. Design management effective companies performed significantly better than their respective industry.

### 3. 3. Financial Ratios

In economics, various financial ratios are used to evaluate the performance of a business from various angles. In this paper, four areas are explored: financial health, activity, growth, and profitability. Financial health ratios, also referred to as liquidity ratios, measure a firm's ability to meet its short-term obligations. Activity ratios present how well a firm replenishes its inventory and collect its receivables, thus measuring how efficiently it utilizes its assets and liabilities. Growth ratios measure the rate at which a firm is growing, usually in terms of its revenue. Lastly, profitability ratios measure a firm's ability to generate an adequate return to sustain a healthy business. A total of 12 financial ratios were used in this research. The details are as specified in Table 2.

Table 2 Financial ratios

Category	Ratio	Calculation	Indication
Financial health	Current ratio	Current assets / current liabilities	Whether the company can pay off its short-term liabilities by liquidating its current assets
	Quick ratio	Quick assets / current liabilities	More stringent measurement of the current ratio
Activity	Asset turnover ratio	Net revenue / average total assets	The efficiency with which the company uses its total assets to generate revenue
	Inventory turnover ratio	Cost of goods sold / average inventory	Inventory management effectiveness
	Receivables turnover ratio	Net revenue / average receivables	The rate at which the company collects its receivables
Growth	Revenue growth rate	$(\text{revenue}_{\text{current}} - \text{revenue}_{\text{previous}}) / \text{revenue}_{\text{previous}}$	Revenue growth rate
	EPS growth rate	$(\text{EPS}_{\text{current}} - \text{EPS}_{\text{previous}}) / \text{EPS}_{\text{previous}}$	EPS growth rate
Profitability	Gross profit margin	Gross income / net revenue	The company's competitive advantage
	Operating margin	Operating income / net revenue	The efficiency of generating sales with respect to management-controlled costs
	Net profit margin	Net income / net revenue	The ability to translate sales into earnings for shareholders
	Return on assets (ROA)	Net income / total assets	The efficiency with which the company generates earnings using its assets
	Return on equity (ROE)	Net income / total stockholder's equity	The level of income attributed to shareholders with respect to the shareholders' investment

## 4. Result

Regarding financial health ratios, both current ratio and quick ratio of the design management effective companies were found to be significantly higher than their respective industry with a 0.05 confidence level. This implies that design management effectiveness induces financial stability through efficiency in repaying short-term liabilities. Regarding activity ratios, asset turnover ratio and receivables turnover

ratio of the design management effective companies were found to be significantly higher than their respective industry with a 0.05 confidence level. This indicates that design management effectiveness induces increased efficiency in employing and managing assets. Regarding growth ratios, revenue growth rate of the design management effective companies was found to be significantly higher than their respective industry with a 0.1 confidence level. This implies that design management contributes to a company's marketability and growing market share. Lastly, regarding profitability ratios, operating margin of the design management effective companies was found to be significantly higher than their respective industry average with a 0.1 confidence level. This implies that design management effectiveness contributes to increased efficiency in managing costs and generating sales. Table 3 summarizes the result.

Table 3 T statistics result

Category	Ratios	0.05 Confidence Level	0.1 Confidence Level
Financial health	Current ratio	Reject	Reject
	Quick ratio	Reject	Reject
Activity	Asset turnover ratio	Reject	Reject
	Inventory turnover ratio	Do not reject	Do not reject
	Receivables turnover ratio	Reject	Reject
Growth	Revenue growth rate	Do not reject	Reject
	EPS growth rate	Do not reject	Do not reject
Profitability	Gross profit margin	Do not reject	Do not reject
	Operating margin	Do not reject	Reject
	Net profit margin	Do not reject	Do not reject
	Return on assets (ROA)	Do not reject	Do not reject
	Return on equity (ROE)	Do not reject	Do not reject

## 5. Conclusion

Objective financial values of effective design management were explored with recipients of Korea Design Award in the category of design management as research subjects, using t statistical analyses. In all four categories of financial health, activity, growth, and profitability, the companies recognized for successful design management showed outperformance compared to the average of their respective industry with varying levels of statistical significance. In particular, as the null hypotheses were rejected on the confidence level of 0.05 and implied more distinguished outcome in the category of financial health and activity, it is reasonable to deduce that effectively employed design management contributes not only to non-financial values but also to financial values for a company in stably and efficiently operating its business activities.

Furthermore, the potential value of the current study resides in the development of a methodology to directly compare and evaluate the value of a dimension that embraces and interact with the entire business activities. Previously, most analyses in this line of research has involved comparison of data between the competent and the incompetent or between before and after the adoption of a concerning activity due to industry-specific characteristics. By normalizing the data to the average of each respective industry, such industry dependency can be removed to allow researchers to freely explore business performance across various dimensions involving firms belonging to diverse industry sectors.

The exact definition and scope of the concept of design management still remain debatable to this day. However, as is outlined in the screening criteria for Korea Design Award and is reviewed by the current research, it is reasonable to define the concept as the integrated activity of realizing and enhancing the strategic value of design in the business realm. Thus, the result of this research infers that the ideologies encouraged by design management and continuous efforts in managing and utilizing design collectively

contribute to and translate into increased corporate performance and marketability. In this regard, it is not only satisfying but also hopeful that the evolving role of design reaches far beyond immediate visual attractions and goodwill to limits that can evidently be detected through objective statistical evaluations.

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