The Impact Model of Marketing Information Systems on Financial Performance of Companies

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A r t i c l e   I n f o

A B S T R A C T

Objective: The objective of this research is to present a model that demonstrates the efficiency and effectiveness of a company's marketing information system through its connection and impact on financial performance variables in 2018.

Methodology: The research method, in terms of nature and content, is of a correlational type and belongs to applied studies. The statistical population of this research consists of 440 individuals, including managers and financial and marketing officials from 20 high-performing companies listed on the Tehran Stock Exchange. Based on the Morgan-Krejcie table, a statistical sample of 205 individuals was selected using stratified random sampling. For data analysis, structural equation modeling and multivariate regression were employed using AMOS and SPSS software.

Findings: The research results indicate a significant positive relationship between the marketing information system and financial performance. The model's fitness indices suggest that the proposed model has a suitable fit.

Conclusion: Overall, it can be stated that intelligent information systems and marketing research are the only components of the marketing information system that have a positive impact on all financial performance variables of the study. Therefore, it is recommended to pay special attention to the subsystems of intelligent information systems and marketing research to enhance the effectiveness and efficiency of the marketing information system.

Keywords: *Marketing Information System, Financial Performance, Structural Equations.*

1 Introduction

Institutions and business units require strategies, operational plans, and consequently, systems and subsystems that enable them to adapt to their surrounding environment to continue their existence and success (Rustan et al., 2022). As organizations strive to increase profits, enhance company value, and consequently increase shareholder wealth, they must offer practical solutions for this purpose (Hutahayan, 2020). Therefore, increasing revenue from services and sales on one hand, and reducing product costs and unnecessary expenses on the other hand,

are important factors in achieving profitability and wealth for an organization (Alhamdi, 2020). Hence, designing and implementing a comprehensive information system, such as a Management Information System (MIS) or a Marketing Information System, is essential for a business unit. These systems can provide significant information and decision-making tools for managers by having appropriate subsystems like research and development of sales methods, daily, monthly, and annual sales reviews, price research, product design, and more (Thuita & Njeru, 2021).

Today, creating a database to record marketing information is considered one of the important aspects of establishing and utilizing a Marketing Information System (Al-Waeli et al., 2020). The responsibility and role of the Marketing Information System have expanded from merely collecting information to generating information through close customer communication (Adam, 2020). Organizations today feel the need for accurate, timely, and precise information more than ever to perform their assigned tasks correctly (Sabihaini et al., 2021). Management Information Systems, a type of Information System (IS), have a profound impact on organizational efficiency. The Marketing Information System includes people, equipment, procedures, computer hardware and software for identifying, collecting, analyzing, evaluating, and distributing correct, timely, and necessary information to marketing decision-makers. Therefore, Marketing Information Systems play a crucial role in marketing activities and management systems (Plomaritou & Patsiouras, 2020). The current issue is to identify and examine the financial performance variables impacted by existing Marketing Information Systems in organizations, determining how much these systems contribute to the financial success of a company by increasing profitability or enhancing financial performance (Ślusarczyk, 2020).

The primary goal of company owners and management is to achieve profitability; thus, analyzing company profitability is an important aspect for investors (Al-Momani & Al Assaf, 2020). Company profitability is measured based on financial profitability ratios, which assess economic efficiency. To achieve better financial performance, companies usually invest in various aspects, one of which is the Marketing Information System (Hendrata et al., 2021). The growing trend of Marketing Information Systems requires precise and scientific planning for economic utilization. Given the weak economic conditions in many developing countries, the focus on its economic applications is a particular issue that development program experts and implementers pay attention to (Hendiarto et al., 2021). This research aims to present a model for the impact of Marketing Information Systems on financial performance in three main areas: financial performance (profit, return on assets, return on investment, return on sales, etc.), market performance (sales, market share, etc.), and shareholder returns (total shareholder return, economic value added, etc.). This research evaluates company financial performance using return on investment rate, return on equity rate, return on sales rate, dividends, price-to-earnings ratio, economic value added, and market value added. The significance of this research lies in examining what subsystems a Marketing Information System includes, the components of a modern Marketing Information System, the factors that create a modern Marketing Information System, and how to ensure that the success of a company's operational programs results from the performance of the Marketing Information System. Therefore, this research seeks to address the primary question of what is the appropriate model for the impact of Marketing Information Systems on financial performance and to identify the components of Marketing Information Systems, financial performance, and determine the extent of the impact of each Marketing Information System component on financial performance.

2   Methods and Materials

The statistical population studied in this research consists of managers, officials, financial experts, and marketing experts from 20 high-performing companies listed on the Tehran Stock Exchange, based on research conducted by the Securities and Exchange Organization in 2015, totaling 440 individuals. The sample size in this research, based on the Morgan-Krejcie table, was determined to be 205 individuals. The research timeframe pertains to 2018. In this research, the components of the Marketing Information System (sales management, intelligent information and marketing research, sales forecasting, product management, external information database and sales promotion research, internal information database and distribution and cost control research, and price research) were identified as independent variables and the components of financial performance (return on investment rate, return on equity, return on sales, dividends, economic value added, market value added, and price-to-earnings ratio) as dependent variables, based on expert opinions using the Delphi technique. The initial questionnaire with 288 items, based on a 5-point Likert scale, was sent to 12 experts. Subsequently, the main

questionnaire was developed with 99 key questions, considering the suggestions and revisions made. After expert review and consensus on the main questionnaire, with some key questions deleted and some new suggestions added, the questionnaire was finalized with 63 questions and distributed among the experts for final approval. Then, the questionnaire was distributed among the members of the statistical population, and after collecting 205 questionnaires deemed appropriate for analysis, the data obtained from the questionnaires were analyzed using structural equation modeling and multivariate regression with AMOS and SPSS software.

3   Findings and Results

An examination of the demographic characteristics of the respondents shows that 75.6% are male and 24.4% are female. Additionally, 8.35% are aged between 25 to 35 years, 36.5% are between 36 to 45 years, 21.6% are between 46 to 55 years, and 6.2% are between 56 to 65 years. In terms of education, 29.7% have an associate degree, 33.6% have a bachelor's degree, 26.4% have a master's degree, and 10.3% have a doctorate. Table 1 shows the descriptive statistics including the mean and standard deviation of the research variables.

Table 1

Descriptive Characteristics of Research Variables

Variables	Mean	Standard Deviation
Intelligent Information and Marketing Research Subsystem	2.80	1.13
Sales Forecasting Subsystem	2.78	1.16
Cost Control and Price Research Subsystem	2.90	1.14
External Databases and Sales Promotion Research	3.78	0.97
Internal Databases and Distribution Research	2.92	1.22
Product Management Subsystem	3.57	1.10
Return on Investment Rate	3.61	1.11
Return on Equity	3.61	1.10
Return on Sales	3.53	0.95
Economic Value Added	3.70	1.04
Market Value Added	3.58	1.00
Price-to-Earnings Ratio	3.54	1.05
Dividends	3.58	1.22

Next, to determine the overall model fit, the suitability criteria of the model fit were examined, and the following indices were calculated using AMOS software. The results in Table 2 show a relative Chi-square index value of 2.9, which is less than 3. All indices are within the acceptable range, and the RMSEA is smaller than 0.08, indicating that the overall model fit indices are satisfactory.

Table 2

Overall Model Fit Indices

Index	Desired Threshold	Reported Value
X²/df	3 or less	2.9
NFI	0.9 or higher	0.891
IFI	0.9 or higher	0.94
CFI	0.9 or higher	0.939
GFI	0.9 or higher	0.901
TLI	0.9 or higher	0.926
RFI	0.9 or higher	0.891
PCFI	0.5 or higher	0.767
PNFI	0.5 or higher	0.744
PRATIO	0.5 or higher	0.817
AGFI	0.9 or higher	0.865
RMSEA	Less than 0.08	0.07
RMR	Close to zero	0.028

To assess the reliability of the overall measurement model, composite reliability and divergent validity were examined, as shown in Table 3.

Table 3

Examination of Divergent Validity of Model Scales

Variable	Marketing Information System	Financial Performance of Listed Companies
Marketing Information System	AVE = 0.666	-
Financial Performance of Listed Companies	(r^2 = 0.37)	AVE = 0.613

The findings in Table 3 show that the average variance extracted (AVE) of the constructs is greater than the squared correlation coefficient with other constructs. Therefore, the divergent validity of the constructs of the model is confirmed. After ensuring the acceptability of the measurement model in the structural equation modeling, we are in a position to estimate and test the conceptual model of the impact of the marketing information system on financial performance using structural equation modeling. The structural model was fitted in AMOS software, and to determine the overall model fit, the fit indices were calculated, as shown in Table 4. The results in Table 4 indicate a relative Chi-square index value of 2.63, which is less than 3. All indices are within the acceptable range, and the RMSEA is smaller than 0.08. The fit indices in Table 4 indicate that the structural model of the impact of the marketing information system on financial performance of listed companies is satisfactory, and thus the structural model is confirmed. Based on the confirmed model, Table 5 examines the main research question.

Table 4

Fit Indices for the Structural Model of the Impact of the Marketing Information System on Financial Performance

Index	Desired Threshold	Reported Value
X^2/df	3 or less	2.63
RMR	Close to zero	0.042
GFI	0.9 or higher	0.913
AGFI	0.9 or higher	0.881
NFI	0.9 or higher	0.918
RFI	0.9 or higher	0.901
IFI	0.9 or higher	0.948
TLI	0.9 or higher	0.936
CFI	0.9 or higher	0.947
PRATIO	0.5 or higher	0.824
PNFI	0.5 or higher	0.756
PCFI	0.5 or higher	0.780
RMSEA	Less than 0.08	0.065

The findings in Table 5 show that the marketing information system variable has a significant impact on the financial performance of listed companies at a 99% confidence level (critical ratio of 6.71, which is greater than 2.56). Given that this relationship is positive, the marketing information system variable positively impacts the financial performance of listed companies, confirming the impact of the marketing information system on financial performance (standardized coefficient of 0.57 and significant).

Table 5

Results of Examining the Main Research Question

Relationship	Standardized Coefficient	Critical Ratio (CR)	Significance Level	Conclusion
Financial Performance of Listed Companies ← Marketing Information System	0.57	6.71	0.001	Relationship is positive and thus confirmed

In this part of the research, to answer the subsidiary research questions, the impact of seven subsystems of the marketing information system on each of the seven financial performance variables was examined. Therefore, the multiple regression technique and SPSS software were used, and the results are presented in Table 6.

Table 6

Results of Multiple Regression Analysis of the Impact of Marketing Information System Variables on Financial Performance Variables

Marketing Information System Variables	Return on Sales	Return on Equity	Dividends	Price-to-Earnings Ratio	Return on Investment	Economic Value Added	Market Value Added
Sales Management	0.260	-	0.199	0.265	0.215	0.151	-
Intelligent Information and Marketing Research	0.275	0.228	0.216	0.106	0.072	0.091	0.133
Sales Forecasting	0.426	-	0.133	0.023	-	0.226	0.195
Cost Control and Price Research	0.103	-	0.093	0.081	-	0.223	0.197
External Databases	0.028	-	-	-	0.143	0.146	0.202
Internal Databases	0.054	-	0.173	0.088	0.163	-	-
Product Management	0.359	-	-	0.295	0.291	-	-

4   Discussion and Conclusion

The aim of this research was to present a model for the impact of the marketing information system on the financial performance of companies listed on the stock exchange. Overall, the model fit indices showed that the proposed model in this research is satisfactory, and the research results indicated that the marketing information system impacts financial performance by 0.57, which aligns with the findings of other researchers (Adam, 2020; Al-Waeli et al., 2020). Organizations today increasingly feel the need for accurate, timely, and precise information to perform their assigned tasks correctly. Management Information Systems, a type of Information System, significantly impact organizational efficiency (Hendrata et al., 2021). The marketing information system is a set of processes and methods designed to generate, analyze, disseminate, and maintain forecasted marketing decision information based on a regular and continuous process (Hendrata et al., 2021). The concept of the marketing information system was the first section discussed in the Management Information System concepts as a fundamental need in the information system. A marketing information system should not only serve as a center for storing all related and relevant customer information but also have the capability to collect, store, and analyze information related to the marketing mix, competitors, macro-environmental variables, and internal company information and documents (Kamau & Njuguna, 2020). In recent years, many researchers have tried to attract more customer satisfaction and better design marketing strategies and actions by integrating the approach of quality function deployment and strategic marketing planning (Rustan et al., 2022).

On the other hand, the importance of performance evaluation can be examined from different perspectives; today, companies use various orientations such as market orientation, learning orientation, total quality management, innovation, technology orientation, employee orientation, and other orientations to survive in turbulent and dynamic global markets (Thuita & Njeru, 2021). Each of these orientations increases organizational performance; however, market orientation impacts organizational performance more than other strategic orientations (Ali & Oudat, 2021). Individuals inside or outside the organization may provide different definitions for performance; if individuals within the organization do not have different views on performance, a unique and common definition of performance will be provided, which is practically difficult. Financial performance indicates the profits, revenues, return on investment, and return on sales of the organization (Ślusarczyk, 2020). In a general classification, performance criteria can be divided into two groups: financial and non-financial criteria. Non-financial criteria include production, marketing, administrative, and social criteria, and financial ratios are one of the methods suggested as financial criteria (Hutahayan, 2020).

Overall, it can be stated that intelligent information systems and marketing research are the only components of the marketing information system that have a positive and significant impact on all financial performance variables of the study. Therefore, it is recommended to pay special attention to the subsystems of intelligent information systems and marketing research, such as examining potential

and actual customer information, reviewing information on the stock market, identifying methods for developing potential sales, and reviewing stock market research reports to enhance the effectiveness and efficiency of the marketing information system.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Authors Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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