



The Investigating the Impact of Competition On Decentralization, Control System Changes and Management Accounting and Company Performance

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Abstract: When companies are faced with increasing competition, they have to take measures to stay in the market and maintain the current situation and the transition from the crisis. Managers in order to get effective decisions need control systems and management accounting to receive timely and accurate information, which in turn will improve the performance of companies in today's competitive environment. After many years of experience, the world has come to the conclusion that if an organization wants to be pioneer in the economy and its work and not be left behind in competition, it must have a highly professional, creative and motivated human resource. The lack of concentration and delegation of authority on lower levels executives of the organization create more opportunities for managers, subordinate's partnership, accountability and make better decisions.

Companies in order to growth and development in competitive areas require a system for evaluating the performance of the organization to evaluate the efficiency and effectiveness of the organization's activities. Using control systems and management accounting can provide the important and essential information needed by managers.

Therefore, the research will examine whether competition effect on decentralization, changes in control systems and management accounting, and company performance improvements?

Key words: Competition, Decentralization, Control System Changes, And Management Accounting and Performance

1. INTRODUCTION

This research studies the impact of competition on decentralization, changes in control systems, and management accounting and corporate performance.

Market competition is one of the key elements of the company's external environment. The severity of the competitive factors has a significant impact on the organization. With the intensification of market competition in today's business environment, decentralization should also be transformed as an adaptable strategy. Therefore, the intensity of competition can be led to delegation of authority to intermediate managers or lower departments (Hoque, 2011).

Due to the expansion of decision-making power in decentralized units, decentralization promotes innovation. By increasing decentralization, control systems and management accounting systems need to be changed.

Regarding the critical role of control systems and management accounting in improving the performance of organizations, managers using further investigation on efficacy and effectiveness of control systems and management accounting, explain the importance of using these systems in decision making, and determine the role of each of the components of control systems and management accounting in relation to

the competitive position of the organization, which ultimately leads to improved organizational performance (Gajoyee, 2013).

In recent years, researchers such as Abernethy and Bouwens (2005), Baines and Smith (2003), Nevicky and Harrison (2006) have suggested that organizations need to adapt to the social and organizational environment to modern management accounting and control systems. Larens and Loursh conducted a study in 1967 that showed those companies whose internal organizational processes are aligned with the demands of the external environment are often more successful in organizational terms. Kaplan (1995) argued that in competitive environments, managers should have timely and accurate information to guide activities and improve performance. Control and management accounting systems are part of the organization's management tools and their role in organizations is to transform simple accounting into a management accounting that participates in decision-making. The changing business environment encourages management to shift accounting to a strategic position in an organization to use more modern management accounting and control systems for more accurate information (Hoque, 2011).

Libby and Waterhouse (1996) reinforced the view that increased market competition triggered a shift in control systems and management accounting. Kaplan and Atkinson (1998) argued that authorized directors (executives) need reliable information about products and services to be able to make the right decisions (Hoque, 2011).

A questionnaire was used to collect data needed for this research. The questionnaire was distributed among the companies listed on the stock exchange by e-mail, their answers were received by e-mail, then the data were analyzed using the standard method of analysis of the path analysis of LISREL stating the intensity of competition causes companies change their control systems and management accounting, and this change strengthens the performance of companies, and decentralization in the model is shown as competition encourages decentralization and decentralization causes changes in control systems and management accounting as well Improve corporate performance.

2. Theoretical Foundations

Control systems and management accounting are one of the tools for achieving the goals of the organization, which emphasizes the use of non-financial indicators of performance and advanced management accounting that includes financial and non-financial information simultaneously. The use of control systems and management accounting plays a key role in evaluating the performance of the organization and it helps in the management of the organization's performance. Also, employee participation and collaboration, in turn, are effective in achieving the goals of the organization (Maksoud, Cheffi and Goudi, 2016).

To execute company's strategies, namely the performance improvement, there must be commitments to strategic goals and control systems and management accounting. These systems represent a set of tools for evaluating the company's performance through the implementation, communication, and coordination between the organization's strategies (Rieckhof, Bergman and Gunther, 2015).

2.1. Competition and decentralization

Competition is a factor in the dynamics and efficiency of the economy, and the higher competitive indicators of an economy, the more powerful and more developed that economy. The competition increases creativity and innovation, and encourages industry owners and economic activists to provide customers with better quality products and services by increasing productivity and innovation (Shirkovand, 2015).

Decentralization is an indispensable factor for companies that want to respond to market changes (Hoque, 2011). In a competitive environment, the survival and growth of companies requires a competitive advantage and an approach that can create competitive advantage for organizations is a strategy (Shirkovand, 2015).

A study by Lawrence and Lorch in 1967 suggested that companies that have internal organizational processes that are consistent with external environment demands are often more successful in organizational terms. Other studies by individuals such as Libby and Waterhouse in 1996, Merchant and Manzoni in 1989, and so on, suggest that the problem of managing an organization's external environment, such as competition, can be solved through organizational change, the need for control and decentralization (Hoque, 2011).

2.2. Competition and changes in control systems and management accounting

Individuals and organizations, in different circumstances, decide on their expectations. The first is the need for each person to decide is the information about the subject and the problem, and the existence of the information enables individual to adjust or confirm his/her previous expectations, or even this information provides expectations (Hemati, Kazemi and Vermesyar, 2014).

Today, control and management accounting systems that help corporate managers in decision making process are so important that they are considered as a very important information system in any organization; the need for a proper control system and management accounting is the availability of accurate, up-to-date and relevant information. The subject of changes in management accounting and control systems has attracted the attention of scholars thought for decades (Ardekani and Ranjbar, 2015). Economic studies conducted by various people, such as Hammer in 1996, Houke and Houper in 1997, Krishnan in 2005, etc., suggested that today's companies need changes to control and management accounting systems in order to be able to get timely, proper and relevant information across a wide range of topics such as production costs, efficiency, quality of products and services, after sales services, customer satisfaction, and profitability. In 1990, Bromwich claimed that changes to control systems and management accounting should be modified or expanded in order to focus on activities that create added value for organizations, in proportion to competitors.

The study conducted by Libby and Waterhouse reinforced the view that increased market competition triggered a shift in control systems and management accounting (Houke, 2011).

2.3. Decentralization and changes in control systems and management accounting

Due to the expansion of decision-making power in organizations in which there is decentralization, delegation of authority (empowerment) promotes a suitable field for innovation. In other words, with the increasing decentralization, the control systems and accounting management of companies need to be changed so that managers and employees can accept new skills and innovations associated with increased levels of delegation. Managers entrusted with them will need reliable and timely information so that they can take appropriate decisions to meet market needs (Houke, 2011).

Accounting information systems, as part of an information management system, provide the most information to management for the execution of tasks and decisions (Kuwait, 2015).

2.4. Decentralization, changes in control systems and management accounting and corporate performance

Decentralization creates incentives for managers at lower levels to make better economic decisions, which in turn can lead to corporate performance improvements. By delegating authority, the organizations can focus on responding to the needs of customers and other stakeholders. In fact, the managers who have been given control over their responsibilities, when they have more freedom to carry out their duties, are more interested in their specialized tasks. The possibility to decide on low levels encourages managers get better information and become more strategic in their decisions. The better the economic and strategic decisions of lower-level managers, the better the company's performance, and managers need timely, reliable and accurate information to appropriate decision-making, provided through their control systems and management accounting. As a result, these systems should be up-to-date and in line with the current organization conditions (Houke, 2011).

2.5. Changes in the control and management accounting systems and company's performance

Organizational performance can be defined as a supervisory structure for achieving organizational goals. Organizations and companies to grow and develop in a competitive environment need a system for evaluating the performance of the organization in order to evaluate the efficacy and effectiveness of the organization's activities. Given the current growing market conditions, organizations must be able to identify all their operational and non-operational capabilities in order to be successful in their own operations (Ganoyee, 2013).

Changes in control systems and management accounting give managers the opportunity to obtain the information they need to make the right economic decisions. Management accounting suggests that companies, if they use control systems and management accounting that are more relevant to their social and organizational environment, then they will perform more efficiently. This result is in the management

accounting literature that companies often use changes to control and management accounting systems to improve their decision making and corporate performance (Houke, 2011).

2.6. Competition, decentralization, changes in control systems, and management accounting and company performance

Due to the competition in the market and its conditions, the decisions of the directors of the companies are changed. The environment, in which companies are operating today, is a growing and highly competitive one, and companies are forced to compete with many factors to survive. There is also a close relationship between the product market and the decisions taken by the directors (Setayesh, 2011). Market competition is a good tool for controlling the management and performance of companies (Safarzadeh and Rafiee, 2014).

As discussed in the discussion above, companies that their internal organization's processes are consistent with external environment demands are often more organizationally successful. With the intensification of market competition in a rapidly changing business environment, decentralization is used as a compromise strategy (Houke, 2011).

Increasing the scope of lower-level managers by assigning more decision-making power leads to increased productivity, increased interest in doing work, enhanced team collaboration, individual development, and avoiding the waste of time for managers. Today, an organizations' advantage to surpass each other is high self-esteem and the level of commitment of employees to organizational goals. Control systems and management accounting by providing timely, relevant, correct information to managers, help them in their decision-making process, and making optimal decisions leading improvement of company's performance (Mohyeddini, 2013).

As a result, increasing competition effects on decentralization and changes in control systems and management accounting and this decentralization and changes in control systems and management accounting also in turn affect the firm's performance. Therefore, increasing competition through decentralization and changes in control systems and management accounting affects the company's performance (Houke, 2011).

Following the studies, the hypotheses of this research are as follows:

1. The intensity of competition increases the decentralization of the organization.
2. The intensity of competition increases the changes in control systems and management accounting.
3. Decentralization increases the changes in management control and accounting systems.
4. Decentralization through changes in control systems and management accounting improves company performance.
5. Changes in control systems and accounting improve performance of the company.
6. The effect of the intensity of competition on the performance of the organization is affected by the decentralization and changes in the control systems and management accounting.

3. Research method

Considering the focus of this research, data and information has been collected through a questionnaire completed by experts and managers of different companies. The timeframe for the questionnaire is 2013 and 2014.

The total statistical population of the study consisted of 463 companies admitted to the stock exchange, of which 210 companies were considered as sample size and the sample size was computed using the Cochran formula as follows:

$$n = \frac{Nt^2pq}{Nd^2 + t^2pq} = \frac{463 * (1.96)^2 * .5 * .5}{463 * (.05)^2 + (1.96)^2 * .5 * .5} = 210$$

For a number of companies, the questionnaire was distributed through an email address gotten from the exchange site, and the response to the questionnaires was also received via email. Also, some of the questionnaires were distributed through visiting companies and were collected after completion.

According to the collected questionnaires, 210 companies sampled include 57 manufacturing companies, 106 trading companies and 47 services companies accepted on the exchange.

In the questionnaire for comparing the company's performance with competitors, ten functional items with a scale between zero (very weak) and five (excellent) and the importance of each of the functional dimensions in long-term growth of the company with a scale of zero (no importance) to five (very important) has been specified. Then, the overall organizational performance measure is obtained by multiplying the number of comparisons of performance with competitors in the number of values and the sum of numbers.

In assessing the impact of competition on the five items, the impact of the types of competitions identified in the core business process of a company has been determined with a scale of one (can be ignored) to five (very severe) and the importance of each type of competition in profitability and long-term growth of the company with a scale of one (no matter) To five (very important). Then, the measure of the overall competition is obtained by multiplying the number of competition effects in the number of significance numbers and the sum of numbers.

In the assessment of decentralization in the company, five possible levels of decision-making scale from the worker of production (point five) to the person outside the company (point one) for the fifteen functional policy items are specified. Then, the overall decentralization score is obtained by collecting the given points.

To evaluate changes in the control systems and management accounting, seventeen items have been used to respondents determine whether any changes have made to the items. Finally, the information collected through the questionnaires would be quantitated based on the above description and analyzed through the LISRELpath analysis software.

Also, to investigate the causal relationships between the variables of competition, decentralization, control system changes, and management accounting and performance of the company, the LISREL path analysis method has been used, and the relationship between these variables has been analyzed. Then the relationships between the variables are represented by arrows and statistically expressed as path coefficients.

4. Research findings

4.1. Descriptive statistics

Before examining the research hypotheses, it is necessary to study the descriptive **statistics** associated with the variables and research hypotheses, so in this section, the descriptive indices of the variables studied is reported in the table below.

Table 1. descriptive indices of variables

variable	MIN	MAX	Mean	SD	Skewness	Kurtosis
Changes in control systems and management accounting	0	34	0.67	0.28	-0.75	-0.10
Competition	2	97	3.18	0.86	-0.11	-0.75
Decentralization	0	138	2.83	1.03	0.22	0.03
Performance of the company	0	159	2.64	0.88	-0.81	0.79

The table above shows the results of descriptive indexes related to the research variables, mean indexes and standard deviations of variables indicating the proper distribution of data and indicators of Skewness and Kurtosis indicating the natural distribution of research variables.

4.2. Examining the normal distribution of variables

To use statistical techniques, it must first be determined whether the data collected is of a normal distribution. In the case of normal distribution of data, parametric tests are used to test hypotheses. For this purpose, we study the results of the Kolmogorov-Smirnov test on each of the dependent and independent variables at this stage. According to the results obtained, appropriate tests for checking the validity and reliability of the research hypotheses are carried out.

Table 2. results of Kalmogorov-Smirnov test to check the normal distribution of variables

Variable	z K-S	p	Result
Changes in control systems and management accounting	0.08	0.11	Normal
Competition	0.06	0.09	Normal
Decentralization	0.07	0.06	Normal
Performance of the company	0.09	0.08	Normal

According to the above table, the Kalmogorov-Smirnov z statistic for all variables is larger than the significance level of 0.05. Regarding this finding, it can be said that the distribution of variables is normal and parametric tests can be used to examine the hypotheses.

4.3. Examination of the adequacy of sample size

For examining the size of the sample, Bartlett's test and KMO index were used, and the results are presented in the following table.

Table 3. Sample size adequacy test table

Index	Value	Degree of Freedom	Significance level
KMO	0.65	190	-
Bartlett	0.04087	190	0.001

The significance value of Bartlett's statistic at the level of 0.001 and the value above the 0.06 of KMO index indicate adequacy of sampling and also the suitability of the data for factor analysis.

4.4. Validity and reliability test of the questionnaire (Cronbach's alpha)

Also, to assess the validity and reliability of the questionnaire, Cronbach's alpha test is used and the Cronbach's alpha coefficient is between zero and one, and the closer the coefficient to one is the more reliable and the results are listed in the following table:

Table 4. Cronbach's alpha test results table for evaluating the validity and reliability of the questionnaire

Variable	α	Result
Changes in control systems and management accounting	0.79	Reliable
Competition	0.71	Reliable
Decentralization	0.82	Reliable
Performance of the company	0.86	Reliable

4.5. Theoretical Pattern Test and Hypotheses

Considering that the correlation matrix is the basis of analysis of causal models, especially structural modeling, so before examining the theoretical model, the correlation matrix of the research variables with correlation coefficients and their significant levels are presented in the table below in order to investigate the relationship between the variables.

Table 5. Matrix Correlation Table of Variables

Row	Variable	1	2	3	4
1	Changes	1			
2	Effects of Competition	0.37**	1		
3	Decentralization	0.18**	0.33**	1	
4	Performance	0.50**	0.58**	0.36**	1
*p<0.05, **p<0.01, ***p<0.001					

The results of the above table based on the results of Pearson correlation test show that the relationship between all variables AS two in two IS positive and at a significant level of 0.01, the positive relationship between the variables shows that by increasing each of the variables the amount of other variable also

increases, and vice versa. There is a significant relationship between the changes in control systems and management accounting with the company's performance of 0.50 at the level of 0.01. There is a significant positive correlation between competition and corporate performance with a coefficient of 0.58, as well as there is a significant positive correlation between decentralization and the performance of companies with a coefficient of 0.36.

In this regard, Browni and Kadak have recommended the use of estimation of the approximation error variance, which Steiger (1990) has proposed as the difference size for each degree of freedom. This index for good models is 0.05 or less. The values above 0.08 represent a reasonable error for approximation in population. Models with an approximation error variance of 0.10 or more have poor fitness.

Jarzakag and Sorbom in the Lasrel program have introduced fitness indicators and adjusted fitness index indicating that the model to what extent has fitness than its lack of existence. The amount of fitness indicators and the adjusted fitness index should be equal to or greater than 90% to accommodate the model. Fitness indices and adjusted fitness index are influenced by sample size. Of course, some experts suggest a value of 0.8 or more for an adjusted fitness index.

4.6. Hypothesis Testing Model

After completing and collecting the questionnaires, the information was quantified as described in the research method. The quantitative information of the questionnaires has been entered into the Lasrel software of path analysis. To test the significance of coefficients of variables, t test was used. The t test indicates whether the independent variable is significant and affects the dependent variable. If the calculated t statistic for variables is greater than 2.5, then the coefficient of the variable is significant and affects the dependent variable.

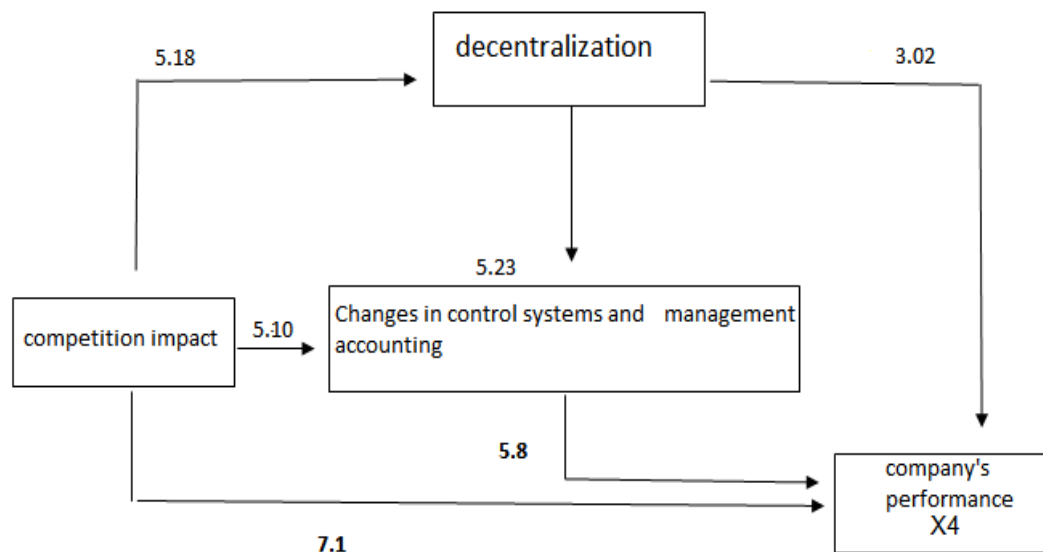


Figure 1. The shape of the path model variables along with the path coefficients of the variables

Given the path coefficients obtained, the above figure shows that:

- 1) The t-statistic of the impact of the competition variable on the decentralization variable is 5.18 and significant and as a result, the competition variable affects the decentralization variable.
- 2) The t-statistic of the impact of the competition variable on the variable of control system changes and management accounting is significant at 5.10. As a result, the competition variable affects the variables of control system changes and management accounting.
- 3) The t-statistic of the impact of the competition variable on the decentralization variable is 5.18 and therefore the competitive variable affects the decentralization variable.
- 4) The t-statistic of the impact of the competition variable on the company's performance variable 7.1 is significant and as a result, the competition variable affects the company's performance variable.

- 5) The t-statistic of the impact of the decentralization on the variable of control system changes and management accounting is significant and 5.23, as a result of the decentralization effects on the variable of the changes in control systems and management accounting.
- 6) The t-statistic of impact of decentralization on the company's performance variable is 3.02 and significant. As a result, the decentralization effects on the company's performance variable.
- 7) The t-statistic of impact of changes in control system and management accounting changes on firm performance is 5.8 and significant. As a result, changes in control systems and management accounting affect the company's performance.

4.6.1. Testing Hypotheses

Direct effects

Since in causal models, each path is a hypothesis that is in direct relationship with each other, so they have direct effects, direct effect occurs when a variable be effective on another variable, without a third variable between them. Namely, a variable can alone predict another variable or cause it. Accordingly, the direct effects of the tested model paths along with the t statistic and the significance level and the explained variance level are reported in the following table. The following table shows the direct coefficients, t statistical values for each path, the significance level and the variance explained for each variable.

Table 6. Estimated path coefficients

Variables	Standard path coefficient	T statistics	Significance level	Variance
The impact of changes in control systems and management accounting, competition and decentralization on performance	-	-	-	0.46
Impact of changes in control systems and management accounting on performance	0.32	5.80	0.001	-
Effect of Competition on Performance	0.41	7.10	0.001	-
Impact of decentralization on performance	0.16	3.02	0.001	-
Impact of decentralization and competition on changes in control systems and management accounting	-	-	-	0.24
Impact of decentralization on changes in control systems and management accounting	0.26	5.23	0.001	-
The impact of competition on changes in control systems and management accounting	0.35	5.10	0.001	-
The impact of competition on decentralization	-	-	-	0.31
The impact of competition on decentralization	0.23	5.13	0.001	-

Indirect effects

Another of the findings of the present study is indirect effects that can be achieved through the deduction of direct effects from total effects; paths that have only direct effects can't have indirect effects. In the present study, the effect of competition on the performance is estimated through mediation of decentralization and changes in control systems and management accounting, and the effect of competition on the changes in control systems and management accounting that are estimated through decentralization has indirect effects as shown in the table below.

Table 7. Indirect effects table

Variables	Indirect effect	t statistics	Significance level
The impact of competition on performance through decentralization and changes in control systems and management accounting	0.12	2.51	0.05
The impact of competition on changes in control systems and management accounting through decentralization	0.17	3.31	0.001
Impact of decentralization on performance through changes in control systems and management accounting	0.18	4.86	0.001

The results of the above table show that competition mediated by decentralization and change on performance with coefficient of 0.12 and at level 0.05 have a significant indirect effect. Also, the above table shows that the effect of competition on changes in control systems and management accounting mediated by decentralization with coefficient of 0.17 at the level of 0.001 has a significant indirect effect.

4.7. Fitness test of the model

In the first step, the matching of the obtained data or, in other words, the fitness of experimental data with the default or theoretical model was tested. In the table below, the results of the general fitness indices of the tested model are shown based on the Lasrel path analysis:

Characteristic	Estimation
Chi-square proportion to the degree of freedom (χ^2/df)	0.05
Estimation of variance of approximation error	0.03
Fit goodness index	0.93
Adjusted fit goodness index	0.92
Adaptive fit index	0.96

Based on this, it can be concluded that the theoretical model is a significant and valid model in society (population) and the sample used in this research.

5. Conclusion

This study contributes to a number of views in the management accounting literature. First, the positive relationship between competition and decentralization reported in this paper suggests that when firms (companies) encounter increasing market competition, they often delegate more power of decision making to lower-level managers in order to be able to make faster and more effective decisions. These results are consistent with the view presented by organizational theorists, according which in a highly competitive environment there should be emphasize on delegating authority from senior management to lower-level managers. This is also evident in the literature and research work of management accounting that the more complexity of the issue the greater the level of decentralization of company.

Second, according to the results presented in this research, they show that decentralization and management accounting activities can be identified simultaneously because they complement or replace each other. Third, the results suggest that there is a positive relationship between competition and changes in control systems and management accounting. One interpretation of these results is that when an organization experiences a highly competitive environment, its stability decreases and they encounter market uncertainties. Therefore, these companies will begin to make more changes in management and control systems so that they respond to issues of intense competition uncertainty.

These results are consistent with the view of management accounting, the more severe the competition, the more management control tools that can provide high-quality information to improve decision making available to managers, so that organizations can enhance their competition. In addition to direct relationships, the results of this study showed that organizations that are in severe competition have a greater interest in experiencing a large number of changes in control systems and management accounting, which increases their organizational performance.

Fourth, in the present study, it was found that the change in control systems and management accounting is a major contributor for organizational performance, and an important direct relationship between the number of changes in control systems and management accounting and organizational performance is the reason for this allegation. These results suggest that more changes in control systems and management accounting mean more organizational ability to generate accurate and useful information for decision-making processes which in turn has a positive impact on organizational performance.

Fifth, one of the important findings of this study is the existence of a relationship between competition and organizational performance, which reason is two important mediators. Namely decentralization and

changes in control systems and management accounting. These results indicate that competition through decentralization and changes in control systems and management accounting affects organizational performance. However, it may be argued that if an organization already has a proper management accounting system due to competition and decentralization, does it need to change it?

Based on the empirical evidence in this paper, it can be said that with increasing competition and more decentralization, existing control and management accounting systems would not be longer appropriate, or that the number of innovations in control systems and management accounting in a few past years will be so high that control systems and management accounting will become worse.

As discussed above, it seems that the two options studied here are decentralization and changes in control systems and management accounting systems that affect the positive relationship between competition and corporate performance.

5.1. Suggestions

According to the findings of this study, the following suggestions are presented:

1. Based on the results of this research, the new competitive environment requires very costly and timely information on the activities and processes of the organization, in which control and management accounting systems are of fundamental importance. Therefore, existing systems need to be reviewed and redesigned in such a way that they are fully adapted to a dynamic and changing organizational environment and provide managers with timely and effective information in their decisions.
2. The findings of this research show that competition affects decentralization. Therefore, with the intensification of market competition in a rapidly changing business environment, lower-level managers should be empowered to have greater decision-making power than a significant level of freedom to lead the organization's activities to improve company performance.
3. Based on the findings of this research, decentralization creates the opportunity for change in control systems and management accounting. Therefore, with increasing decentralization, control systems and management accounting systems need to be changed so that managers and employees can accept the new skills and innovations associated with decentralization.

Finally it should be said organizations are born as dynamic beings in the environment and be provided with the necessary facilities for growth and development. By providing valuable products and services, they provide environmental needs and facilitate the process of community growth and prosperity. Improving corporate (company's) performance is not a one-dimensional measure, but a continuous effort to adapt to changes in control systems and management accounting and decentralization to meet market competition.

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