Management by Indicators and Financial Performance of Industrial Companies in Jordan

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Abstract:

Purpose: This research paper attempts to propose a new management approach for top management on how to lead companies. It examines the actual application level of the proposed management approach "management by indicators" in industrial companies in Jordan. It also investigates the relationship between the application of management by indicators of net income and return on investments of these companies.

Design/Approach/Methodology: The application of management by indicators has been measured through distributing a questionnaire to the members of Securities Depository Center SDC - Public Shareholding Companies - Industry Sector, the number of which is 56 companies. Net income, total assets and return on investment of these companies for 2019 are published in the SDC website.

Findings: The findings reveal that the application of management by indicators exists within the implementation level 40% - 59%. The results show that there is a statistically significant correlation between management by indicators and each of net income and return on investment at the 0.01 level (2-tailed). The findings also indicate that the correlation between management by indicators and return on investment is more statistically significant than the correlation between management by indicators and net income.

Practical Implications: The paper concludes that performance indicators should orient the mentality of top management in running business. This sort of logical thought highlights the importance of performance management in business continuity and explores the causal linkages between measuring results and planning as a dynamic system.

Originality/Value: The research paper is pure and contributes to literature. Management by indicators facilitates performance appraisal and accountability, contributes to transparency and integrity. Thereby, it makes the work environment an enabling place for productivity and achievement.

Keywords: Management by indicators, performance, financial performance, industrial companies, Jordan.

JEL codes: M11, G31.

Paper Type: Research article.

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1. Introduction

Based on management philosophies, concepts and principles, this study attempts to propose a specific management approach like other management approaches, such as management by objectives approach and total quality management approach. The proposed approach "Management by Indicators" focuses mainly on indicators that lead the entire company, direct its strategies and operations, and manages its systems and processes accordingly.

The study examines the application level of this approach "management by indicators" in industrial companies in Jordan. It also investigates the relationship between the application of management by indicators and net income of these companies. Moreover, the study investigates the relationship between the application of management by indicators and return on investments of these companies.

2. Literature Review

Meier *et al.* (2013) highlighted that the effective delivery of industrial services requires systematic approaches for planning and organizing delivery processes and network partners. They classified relevant performance indicators based on their importance for measuring planning performance and delivery performance (Noja and Cristea, 2018). Badawy *et al.* (2016) indicated that key Performance Indicators (KPIs) allows gathering knowledge and exploring the best way to achieve organization goals. Kucukaltan *et al.* (2016) revealed that educated employee is the most important indicator for the competitiveness of logistics companies.

Mohammadfam *et al.* (2016) showed that the performance of certified companies with respect to occupational health and safety management practices is significantly better than that of noncertified companies. Dumitrache *et al.* (2016) mentioned that the use of indicators, management principles and the technological advancement improves the moving load, delivery speed, operation costs, the usage of facilities, energy saving and service quality.

Rodrigues *et al.* (2017) mentioned that in order to facilitate a systematic and streamlined integration of eco-design practices into the product development processes, adequate mechanisms are essential to capture and measure performance improvements, and thereby achieve consistent enhancements in a company's efforts towards sustainable performance. Kaganskia *et al.* (2017) mentioned that key performance indicators KPIs enable companies to focus on the parameters as powerful tools in management processes. They also mentioned that monitoring the KPIs identifies progress toward sales, marketing and customer service goals.

Narkunienė and Ulbinaitė (2018) recommended to use modern performance evaluation methods combining financial and non-financial performance indicators and to evaluate the performance both quantitatively and qualitatively. Andersson and

Thollander (2019) indicated that adopting key performance indicators KPIs within Swedish pulp and paper mills enables a state-of-the-art positioning of best practices in relation to energy KPIs in pulp and paper mills.

Asih *et al.* (2020) identified key performance indicators (KPIs) and categorized them based on performance measurement to improve a holistic performant management organization. They showed that the KPIs that could be implemented in the industrial sector and other sectors to enhance products, business processes, maintenance, services and satisfaction. Gruzina and Poliukhovych (2020) explored the importance of the use of set of indicators (both financial and non-financial) to evaluate the effectiveness of the company competitive development strategies, and in particular, to evaluate the competitive development strategy of consulting companies.

In general, previous studies shed the light on the importance of key performance indicators in evaluating and improving performance. This study aims to reveal the role of performance indicators in managing the overall functions of companies. It also aims to identify the nature of the relationship between applying management by indicators, as a proposed management approach, and financial performance.

3. Theoretical Framework of the Study

This study proposes a management approach that can be adopted by both private and public sectors. The proposed approach of management by indicators revolved around the following sequential steps (Meier *et al.,* 2013; Badawy *et al.,* 2016; Dumitrache *et al.,* 2016; Rodrigues *et al.,* 2017; Kaganskia *et al.,* 2017; Narkunienė and Ulbinaitė, 2018; Thollander, 2019; Asih *et al.,* 2020; Gruzina and Poliukhovych, 2020):

Step One: Define and develop relevant performance indicators for goals and plans. The number of indicators should be measureable and manageable.
Step Two: Set ambitious and achievable periodic targeted values for performance indicators and then develop the strategy and action plans accordingly to achieve these performance indicators.
Step Three: Execute the strategy and action plans efficiently and effectively, and follow up the progress mindfully.
Step Four: Measure and present the actual values of performance indicators against targeted values.
Step Five: Compare performance indicators with performance of previous years to determine trends and compare them with the best in the class (best practices) nationally, regionally and internationally where applicable.
*Step Six:* Analyze performance indicators and related comparisons for development purposes.
Step Seven: Review performance indicators to reflect priorities and shaping the future, and update accordingly the strategy and action plans by adding new initiatives to bridge the existing gaps and for further improvements.

The key steps of applying the approach of management by indicators can be summarized in defining indicators, setting targets, executing strategy and action plans, measuring indicators against targets, comparing indicators historically and with best practices, analyzing indicators, and reviewing indicators and then strategy and action plans accordingly.

A schematic diagram for the proposed approach of management by indicators is shown in Figure 1.

**Figure 1.** *The Proposed Approach "Management by Indicators"*
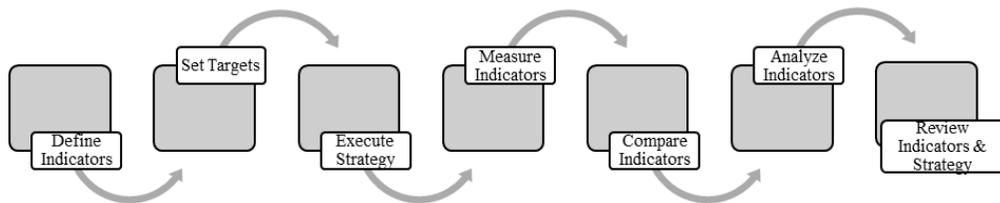
Source: *Own study.*

4.   Research Design and Methodology

This study consists of two types of variables. The independent variable is management by indicators while the dependent variables are net income and return on investment. A schematic diagram for the study model is shown in Figure 2.

Figure 2. *The Study Model*
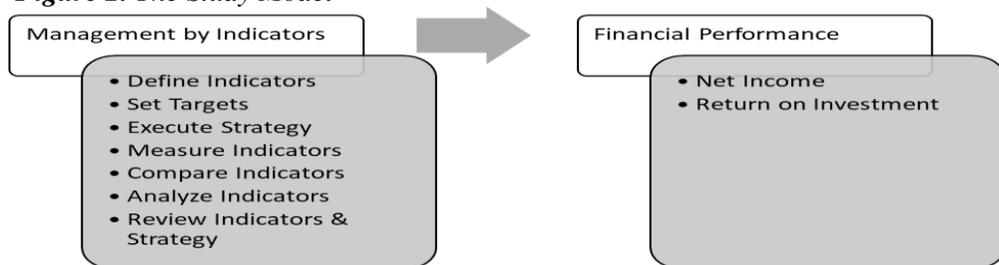
Source: *Own study.*

The application of the approach of management by indicators has been measured through distributing a questionnaire to the members of Securities Depository Center SDC - Public Shareholding Companies - Industry Sector, the number of which is 56 companies. The measurement instrument scale is a 5-point scale: 1 for implementation level less than 20%, 2 for implementation level 20%-39%, 3 for implementation level 40%-59%, 4 for implementation level 60%-79%, and 5 for implementation level 80% and above.

Net income, total assets and return on investment for the year 2019 are published at the SDC website. Return on investment is calculated as follows:

Return on Investment = Net Income / Total Assets

Three hypotheses developed to be tested using appropriate statistical analysis techniques:

The first hypothesis:
H0: the application of management by indicators exists within the range of implementation level 40% - 59%.
H1: the application of management by indicators exists outside the range of implementation level 40% - 59%.

The second hypothesis:
H0: there is no statistically significant correlation between management by indicators and net income.
H1: there is a statistically significant correlation between management by indicators and net income.

The third hypothesis:
H0: there is no statistically significant correlation between management by indicators and return on investment.
H1: there is a statistically significant correlation between management by indicators and return on investment.

The response rate is around 88% (49 companies). Therefore, the response rate is satisfactory to generate the results derived from the responding companies to the entire sector.

5. Research Findings and Conclusion

Descriptive statistics for the approach of management by indicators are shown in Table 1. As shown in Table 1, mean of management by indicators = 2.8816 with standard deviation = 1.22401. This means that the application of management by indicators exists within the 20% – 59% level.

Table 1. *Descriptive Statistics – Management by Indicators*

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Management by Indicators	49	1.00	4.60	2.8816	1.22401
Valid N (list wise)	49				

Source: *Own study.*

Outputs of one-sample t test are shown in Table 2. Using test value = 3 As shown in Table 2, sig. (2-tailed) = .502, which means it is not significant. This indicates that the application of management by indicators exists within the range of implementation level 40% - 59%. This supports the acceptance of the first null hypothesis and the rejection of the first alternate hypothesis.

Table 2. *Outputs of One-Sample T-Test*

One-Sample Test						
	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Management by Indicators	-.677	48	.502	-.11837	-.4699	.2332

Source: Own study.

As shown in Table 3, net income for 49% of industrial companies was negative and was positive for 51% of industrial companies. About 24% of companies, their loss are one million JD and less. Around 20% of the companies achieved net income higher than 2 million JD. Around 25% of the companies achieved net income one million JD and less and the same percentage of companies lost the same amount.

Table 3. *Net Income of Industrial Companies*

Net Profit (Thousand JD)	# of Companies	%
-5000 and less	4	8%
Higher than -5000 – -2000	5	10%
Higher than -2000 – -1000	3	6%
Higher than -1000 – zero	12	25%
Higher than zero – 1000	12	25%
Higher than 1000 – 2000	3	6%
Higher than 2000 – 5000	6	12%
Higher than 5000	4	8%
Total	49	100%

Source: Own study.

As shown in Table 4, return on investment for 49% of industrial companies is negative and is positive for 51% of industrial companies. About 18% of companies their return on investment are -10% and less. Only 8% of these companies achieved return on investment higher than 10%. Around 29% of these companies achieved positive return on investment 5% and less.

Table 4. *Return on Investment of Industrial Companies*

ROI	# of Companies	%
-31% and less	2	4%
Higher than -31% – -21%	1	2%
Higher than -21% – -10%	6	12%
Higher than -10% – -5%	8	17%
Higher than -5% – zero	7	14%
Higher than zero – 5%	14	29%
Higher than 5% – 10%	7	14%
Higher than 10%	4	8%
Total	49	100%

Source: Own study.

As shown in Table 5, Pearson Correlation = .383 and Sig. (2-tailed) = .007. This indicates that there is a statistically significant correlation between management by indicators and net income at the 0.01 level (2-tailed). This supports the rejection of the second null hypothesis and the acceptance of the second alternate hypothesis in relation to net income.

Table 5. *Correlation Results – Management by Indicators and Net Profit*

Correlations		Management by Indicators	Net Profit
Management by Indicators	Pearson Correlation	1	.383**
	Sig. (2-tailed)		.007
	N	49	49
Net Income	Pearson Correlation	.383**	1
	Sig. (2-tailed)	.007	
	N	49	49
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Own study.

As shown in Table 6, Pearson Correlation = .843 and Sig. (2-tailed) = .000. This indicates that there is a statistically significant correlation between management by indicators and return on investment at the 0.01 level (2-tailed). This supports the rejection of the third null hypothesis and the acceptance of the third alternate hypothesis in relation to return of investment. The findings indicate that the correlation between management by indicators and return on investment is more statistically significant than the correlation between management by indicators and net income.

In conclusion and based on the findings of this research, the application of the proposed management approach leads to improvements in performance results. The research results are supported in literature (Badawy *et al.,* 2016; Rodrigues *et al.,* 2017; Kaganskia *et al.,* 2017; Narkunienė and Ulbinaitė, 2018; Thollander, 2019; Asih *et al.,* 2020; Gruzina and Poliukhovych, 2020).

Table 6. *Correlation Results – Management by Indicators and Return on Investment*

Correlations		Management by Indicators	Return on Investment
Management by Indicators	Pearson Correlation	1	.843**
	Sig. (2-tailed)		.000
	N	49	49
Return on Investment	Pearson Correlation	.843**	1
	Sig. (2-tailed)	.000	
	N	49	49
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Own study.

The research paper promotes a change in the mindset or mentality of top management, and indicators should orient its way of thinking, planning and running business. Adopting the language of numbers and percentages and quantitative approaches generally in a proper rigor manner enables leaders to summarize and simplify the big picture and to make evaluation more objective, and then make more feasible and valuable decisions.

This sort of logical thought highlights the importance of performance management in business continuity and explores the causal linkages between measuring results and planning as a dynamic system. Therefore, the key business factor is to start and end with indicators and managing processes accordingly. Management by indicators facilitates and supports performance accountability with evidences and detects poor performance firsthand so as not to lose responsibility. It also makes performance appraisal based on objective basis and contributes to transparency and integrity. Thereby, this makes the work environment an enabling place for productivity and excellence and the focus will be on achievement and nothing other than that.

Governments at all levels (the entire government, sectoral and institutional levels) can also use the proposed management approach "management by indicators". It contributes to the efficiency and effectiveness of delivering missions and services.

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