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Drivers of Performance Measurement Use: Empirical Evidence from Serbia

UDC:005.216.1
005.336.1:334.7(497.11)
DOI:10.7595/management.fon.2016.0002

In the last decades, the interest of academics and practitioners for the efficiency of performance measurement system use has grown rapidly. The aim of this paper is to examine, articulate and test the relationship between maturity of performance measurement systems, strategic compliance of performance measurement and managerial orientation, on one side, and the portfolio of performance measurement uses, on the other. Data were collected from 86 Serbian companies. The results indicate that the most influential factor for diversified use of performance measurement is the maturity of the system. The paper also discusses theoretical contributions, implications for managers and scholars, and recommendations for decision-makers.

Keywords: performance measurement, maturity, strategic compliance, managerial orientation

1. Introduction

In the last decades, the interest of academics and practitioners for the efficiency of performance measurement system use has grown rapidly. (Neely and Bourne, 2000; Epstein and Manzoni, 2004; Kaplan and Norton, 2008; Micheli and Manzoni, 2010). Practice shows that more than two thirds of attempts to implement a performance measurement system fail (McCun, 1998). Sometimes, successfully implemented systems do not lead the organization towards fulfillment of strategic goals. That means that not every performance measurement system necessarily has to be useful and usable at the same time, as well as leading to business success, which is discussed in numerous studies (Schneiderman, 1999; Hudson, Smart and Bourne, 2001). Therefore, efficient performance measurement use has become a focal point of interest for both academics and practitioners.

Extant literature provides valuable insight into the myriad of different uses of performance measurement systems. The most notable are: implementation of corporate strategy (Simons, 1991), communication of strategy (Atkinson, 2006; Braam and Nijssen, 2004; Kaplan and Norton, 2004), formulation of strategy (Gimbert, Bisbe and Mendoza, 2010; Bourne et al, 2000), clear and unbiased communication of goals in an organization (Drew and Kaye, 2007; Mooraj et al, 1999), control purposes (Simmons, 1995), performance management (Bisbe and Malagueño, 2012), employee evaluation, reward and compensation schemes (Van Veen-Dirks, 2010), information feedback (Widener, 2007; Henri, 2006; Tuomela, 2005; Bisbe and Otley, 2004).

Nevertheless, there is scarce evidence on the factors that affect diversification of performance measurement usage portfolio. These factors are important, as they drive a more effective use of managerial control mechanisms. There are few papers that deal with the factors influencing the ways performance measurement systems will be used. Therefore, the objectives of this paper are to: determine the factors that affect the use of performance measurement systems, and examine their influence on performance measurement in Serbian companies. To the best of the authors' knowledge, the study of this kind has never been conducted before.

The paper is organized as follows. Section 2 provides theoretical background and development of hypotheses. Section 3 elaborates on methodology used for the collection, processing and presentation of the data. Section 4 deals with the results of this study and discusses them. Theoretical contributions, implications and further recommendations are presented in the same section. Finally, section 5 is reserved for conclusions.

2. Theoretical Background

2.1. Performance Measurement Use

Most frequent use of performace measures and performance measurement systems is for business monitoring. The process of business monitoring includes all the efforts of the management that are directed towards gathering data from different sources, with the goal to prepare information on performance measures in the format most appropriate for reports, analyses and forwarding information to decision makers. According to Kaplan and Norton, (1996) business monitoring emphasizes the role of performance measurement systems as a mechanism of knowledge accumulation and creation of information feedback, so it is also a base for organizational study. This role is considered diagnostic, and the performance measurement system is awarded the role of monitoring of critical performances needed to achieve strategic goals and report on any deviations in business results (Simons, 2000). Malmi (2001), for example, states that certain companies use performance measurement systems exclusively as information systems, which means that their diagnostic role is in the focus while determining key performance indicators.

In certain industries, reports for external users present a core base for performance measurement (Yongvanich and Guthrie, 2005). In this sense, it does not refer to traditional (obligatory) financial reports and consequential performance measures, but the needs for additional revelations demanded by either government regulatory bodies or important stakeholders. Most common demands in this sense refer to intellectual capital (Norreklit, 2000) and other non-financial performance measures (Biondi and Rebérioux, 2012).

Van Veen-Dirks (2010) emphasizes another important role, and it is evaluation and employee rewards. It can be said that employee performance evaluation and compensation for well executed plans is the most pragmatic use of performance measures. At the same time, it should not be forgotten that employee rewards lead to their own, as well as to organizational learning.

Performance measures are used as information foundation for making adequate business decisions. In references, this phenomenon is better known as performance management (Bisbe and Malagueño, 2012). Companies use performance measurement systems through embedded management mechanism based on goals (Malmi, 2001; Jazayeri and Scapens, 2008). In that way, performance measures should direct managers to the finding whether their decisions produce effects in accordance with set goals. Moreover, problem solving, which is a base for decision making, spreads information through the organization and directs it towards further learning and development. In references, this use is referred to as interactive use of management control mechanisms (Simmons, 2000). If the effects are not appropriate, another important use of performance measures comes into play – corrective actions. Basically, performance measures are used in this sense to create action plans, their implementation and feedback, which completes the cycle of performance measurement.

Performance measures are also used for proper and meaningful communication towards the subordinates, which has been noticed in numerous studies (Atkinson, 2006; Murby and Gould, 2005; Braam and Nijssen, 2004). Communication in this sense includes distribution of information on performances, as well as on decisions on accomplishment measures, which integrate activities within an organization and through different organizational levels. If the performance measurement system is compatible with the strategy, performance measures can be 'cascaded' (Gates, 1999) and, by that, goals can be transferred to lower organizational levels. This use is very important, because it is an assumption of organizational learning and knowledge management.

Measurement and benchmarking represent one of the business necessities, because they are very important for understanding of the position of an organization in relation to competition and for the search of key spaces for organizational growth. Still, Maseshwari and Janssen (2013) suggest that measurement and benchmarking are not founded enough in general practice, but only what is directly visible is being compared. Regardless of this qualification, comparison with other companies can be an important role of performance measures.

Performance measurement systems are also used for accomplishment and setting strategy feedback (Malina and Selto, 2001). That is visible through causal connections between strategy and accomplishment. Based on that, it can be concluded that performance measures are used for the customization of corporate strategy.

2.2. System Maturity and Use of Performance Measurement

Performance measurement systems evolve during time. That evolution primarily refers to the very performance measures used in a system;to data gathering techniques, modelling of connections and relationships among indicators; then, to organizational learning and human resources development, which, on the one hand, gather, analyze and present data, but also change the very performance measures in order to harmonize them with strategic goals. Finally, the technology used to gather, analyze and interpret results changes as well, in the direction of its automatization and software support. Development of all these elements affects the maturity of performance measurement systems. By improving these areas, an organization gradually develops performance measurement through systematic identification of directions and areas that need improvement.

So far, references offer numerous classifications of performance measurement systems according to their maturity. The following need to be pointed out: (1) "Three types of BSC" (Speckbacher, Bischof and Pfeiffer, 2003), (2) "Three types of performance measurement systems" (Garengo, Nudurupati and Bititci, 2007) and (3) "The evolution of performance measurement systems" (Kennerley and Neely, 2003)

The last mentioned model has important conclusions that are a starting point for this paper. Namely, Kennerley and Neely (2003) point out that maturity depends on employees, business processes, the system itself and the culture. The more adjustable they are, the more mature the system will be, and the more important its use. Accordingly, the study hypothesizes that:
H1: System maturity positively affects the use of performance measurement systems.

2.3. Strategic Compliance and the Use of Performance Measurement

Harmonization of performance measures and the whole control mechanism with the company strategy is an important determinant of the efficiency of a performance measurement system. In accounting (and wider, in social sciences), this phenomenon is called the phenomenon of localization of global control system. Namely, it is an adjustment of the whole accounting information system (not only performance measurement system) to the needs of business units, but in a way that they are in harmony with the corporate strategy and contributing to the fulfillment of corporate goals.

In this area, there are different findings on what influence the harmony between performance measures and strategy and the very use and adjustment of performance measures has. It is a general theoretical standpoint that the corporate global strategy must not be too localized in order to achieve corporate goals. Still, there is an interesting case study presented by Cruz, Scapens and Major (2011), which refers to a Portuguese hotel that became part of a larger hotel group. Namely, the authors found that it is possible to create a control mechanism that 'works for local managers', and that is harmonized with the corporate control system and corporate goals. Still, most often multinational companies, through 'Big four' audit firms, directly copy control systems onto regional companies (Berreta and Bozzolan, 2004). Accordingly, the study hypothesizes that:
H2: Harmonization of performance measures with company strategy positively affects performance measures use.

2.4. Managerial Orientation and Use of Performance Measurement

Business orientation of management refers to, as it has been pointed out, all principles that affect management business decision making (Noble, Sinha and Kumar, 2012). It is a reflection of business philosophy and is a direct product of the organizational culture of the management, the set of their values and beliefs (Zhou, Yim and Tse, 2005). Often, references talk about business orientation as strategic orientation (Theodosiu, Kahegias and Katsikea, 2012). Still, this paper discusses orientation issues only conceptually and from a neutral standpoint, and only in the scope of its influence on the use of performance measures.

The relationship between management business orientation and the use of performance measures has not received significant attention in academic and consulting circles. In a relatively modest collection of present knowledge, studies published by de Aguiar, Pinheiro and Oyadomari (2014) and Abernethy, Bouwens and van Lent (2013) should be singled out, despite the fact that these studies only tangentially reveal the nature

of the relationship between managerial orientation and use of performance measures. Actually, the study focuses on short-term, mid-term and long-term orientation and performances of managers, but orientation maturity includes orientation towards financial and non-financial performances of a company. Moreover, the study directly links orientation and organizational success, while this dissertation assumes existence of an intermediary variable – use of performance measures. That means that, if managers prefer financial goals, they will use performance measures that are primarily financial, which can later lead to financial success. The basic assumption is that managers that prefer financial goals emphasize measurement of financial performance and vice versa.

Accordingly, the study hypothesizes that:
H3a: Managerial financial orientation positively affects a diversified use of performance measurement systems.
H3b: Managerial orientation towards buyers positively affects a diversified use of performance systems.
H3c: Managerial orientation towards employees positively affects a diversified use of performance measurement systems.
H3d: Managerial orientation towards internal efficiency positively affects a diversified use of performance measurement systems.

3. Methodology

Data were collected using questionnaire as a research tool. The study applied computer-aided telephone interview as a technique, as it is more controllable, cost-efficient and adjusted to the needs of examinees (Couper, 2000). Prior to sending, the questionnaire was pre-tested in order to improve its readability. The pilot testing was done by 17 persons (11 with academic and six with practical background). The refined questionnaire was emailed to examinees together with a letter explaining the purpose of the study. It was emphasized that the acquired data are highly confidential and may only be used in statistical combinations and for scholarly purposes. The survey data were collected in 2015 (from mid-August to the end of October).

3.1. Sampling Procedure and Data Collection

The study examined 668 companies from Serbia. The lists of companies were provided by two representative institutions – the Faculty of Organizational Sciences (University of Belgrade) and the Serbian Association of Managers. The two lists were combined and refined for duplicated companies. The e-mail did not reach 4.04% of e-addresses due to incorrect addresses, wrong respondents, automatic absence replies or other technical omissions. In total, 90 questionnaires were returned, but 86 have been accepted as valid (with more than 80% of correctly answered questions), making the response rate of 12.87%. The response rate for similar studies varies from 5 to 25% (e.g. Van der Stede, et al., 2005; Lee & Yang, 2011; Bisbe & Malagueño, 2012).

The examinees were the CEOs and senior managers of manufacturing companies. They were selected as the key informants in their companies, thus limiting the possibility of perceptual bias (Teo & King, 1997). The key informants have the access to all relevant strategic information needed for the studies of this kind (Yang, 2015).

3.2. Measures

The variables used in the study were multi-itemed and measured on a five-point Likert-type scale ranging from 'absolutely disagree' to 'absolutely agree'. For the maturity of performance measurement, the items were derived from Kennerley and Neely (2003) study. The maturity of performance measurement refers to the evolution phase in which the performance measurement system in a company was at the moment of the research. Performance measurement system can be considered more mature if it is more harmonized with the goals that need to be achieved, if the measured items are related to the award system in a company, if it is more advanced in the sense of technologial base (e.g. software solution) and if there are frequent meetings dedicated to performance measurement systems. Therefore, the items for maturity of performance measurement are: (1) compliance of managerial goals with performance measures, (2) compliance of rewards and compensation schemes with performance measures, (3) advanced software infrastructure for performance measurement, and (4) frequency of performance measurement at managerial meetings.

Regarding the strategic compliance, the items for assessing this variable were developed for the purposes of this study. The rationale was the best fit with the research settings. The items are listed in Table 1.

Table 1: Operationalization of strategic compliance

Item
We measure only a small number of vitally important business performances
Performances that we measure are harmonized with the business strategy
Our management always agrees on how to measure strategic success
Achievement of goals set by measures is always controlled by those whose performance is measured
Items that we measure point well to the way to achieve success
Items that we measure balance well short-term and long-term goals
Items that we measure balance well financial and non-financial goals

Managerial goals, according to the discussion in the theoretical background, can be mainly financial and non-financial. However, the non-financial objectives can be categorized as customer based, learning and growth oriented, and focused on internal efficiency. Consequently, the study has encompassed the following managerial orientations: finance-oriented, customer-oriented, employee-oriented, and efficiency-oriented.

Finally, the items for the measurement of a dependent variable – use of performance measures, were created in accordance with the uses listed in section 2.1. The complete list is displayed in Table 2.

Table 2: Operationalization of dependent variable

Item (we use performance measures for)
Monitoring
External reporting
Employee evaluation
Decision making
Corrective actions
Communication with subordinates
Comparison with other companies/business units
Adjustments of corporate strategy

3.3. Demographics

The examinee demographics was related to their function, experience, and specific experience related to performance measurement and management. All the examinees were executives – out of that – 35% CEOs, 21.2% executives in controlling and information systems, 14.1% executives in operations, followed by marketing/sales executives (10.6%). Examinees were experienced regarding the number of years of engagement in the examined companies (6 to 10 years - 33.7%, followed by bordering values - 2-5 and 11-30 years). Finally, 43.2% of examinees were involved in performance measurement on a daily to weekly basis, 38.3% were involved in this area on a monthly basis, 12.3% on a quarterly basis, whilst only 6.2% were involved in performance measurement only on an annual basis. The aforementioned indicates that examinees are very likely to be key informants of the surveyed company, thus providing reliability to the study.

4. Results and Discussion

4.1. Descriptive Statistics Summary

Table 3 depicts the most important uses of performance measurement systems. As shown in this table, Serbian companies most often use performance measurement for monitoring and decision making purposes. On the other hand, adjustments of corporate strategy and benchmarking purposes are not as essential as aforementioned. The items are aggregated into one measure on a reliable basis (Cronbach's Alpha = .808).

Table 3: Summary descriptives for dependent variable

Item	Mean	Std. Deviation
Monitoring	3.67	1.241
External reporting	3.02	1.346
Employee evaluation	3.53	1.185
Decision making	3.74	1.019
Corrective actions	3.42	1.184
Communication with subordinates	3.04	1.313
Comparison with other companies/business units	2.79	1.228
Adjustments of corporate strategy	2.98	1.371
Performance measurement use	3.2994	.93451

These four categories were used to make questionnaires, and their mean values and standard deviations are presented in the following table.

Table 4: Summary descriptives for system maturity and strategic compliance variables

Item	Mean	Std. Deviation
Compliance of managerial goals with performance measures	3.64	1.005
Compliance of rewards/compensations with performance measures	3.44	1.164
Advanced software for performance measurement	2.93	1.263
Frequency of performance measurement meetings	3.16	1.197
Maturity of performance measurement system (MATUR)	**3.2936**	**.88384**
We measure only a small number of vitally important business performances	3.13	1.033
Performances that we measure are harmonized with the business strategy	3.80	.875
Our management always agrees on how to measure strategic success	3.51	.934
Achievement of goals set by measures is always controlled by those whose performance is measured	3.41	.955
Items that we measure point well to the way to achieve success	3.65	.922
Items that we measure balance well short-term and long-term goals	3.45	1.046
Items that we measure balance well financial and non-financial goals	3.50	1.059
Strategic compliance (COMPL)	**3.4898**	**.61467**
Financial orientation (FIN)	4.46	.810
Customer orientation (CUST)	4.37	.946
Employee orientation (EMP)	3.30	1.284
Internal efficiency orientation (INTERN)	3.43	1.261

It is interesting to notice that financial success is most important for Serbian managers, closely followed by the need for customer satisfaction. Here, we should especially point out the fact that none of the examinees stated that financial success is not important for the management, which undoubtedly speaks of the importance of financial success for Serbian managers. Employee training and efficiency of internal processes fall behind the previous two goals significantly. It cannot be claimed that these goals are not important to the managers, but they certainly are not as important as financial success.

4.2. Hypotheses Testing

For the purpose of hypotheses testing, the study used the Pearson moment two-tailed correlation analysis and the regression analysis. The correlation analysis is performed as a preliminary analysis, to test the relationship between dependent and independent variables. The correlation matrix is given in Table 5.

Table 5: Correlation matrix for dependent and independent variables

	FIN	CUST	EMP	INTERN	MATUR	COMPL	USE
FIN	1	.157	.060	.156	.140	.208	.171
CUST		1	.345**	.350**	.484**	.592**	.370**
EMP			1	.606**	.524**	.368**	.598**
INTERN				1	.524**	.361**	.616**
MATUR					1	.574**	.721**
COMPL						1	.462**
USE							1

**. Correlation is significant at the level of 0.01 (2-tailed).

The low to medium strength of relationships tested with correlations excludes potential multicollinearity among the variables. The maturity of performance measurement had the highest correlation coefficient with the use of performance measures, followed by internal efficiency orientation and employee-orientation of managers.

The regression analysis points out that 59.8% of the variability of the use of performance measures was explained with dependent variables used in the hypothesized model (adjusted R^2=.598).

Table 6: Regression model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.544	.509		1.069	.289
FIN	.015	.093	.012	.160	.873
CUST	-.085	.091	-.091	-.930	.356
EMP	.130	.071	.186	1.829	.072
INTERN	.175	.076	.241	2.296	.025
MATUR	.535	.108	.523	4.961	.000
COMPL	.055	.149	.038	.369	.713
R square	.632				
Adjusted R square	.598*				
F test	18.869				* p≤.01
a. Dependent Variable: USE					

The statistics related to hypothesis 1 indicates that maturity of performance measurement positively affects the diversity of performance measurement use with the standardized coefficient (beta) .523 (and t-value 4.961). The findings of the regression model implicate that hypothesis H1 predicting a direct relationship between maturity of performance measurement and the diversity of performance measurement use was supported at .001 significance level.

This finding indicates that performance measurement use changes over time. The initial design and set-up of performance measurement systems is often followed by information overload. Information overload is created when managers struggle with information surplus. This dysfunctionality is created when signals and signs coming from different external sources are not properly processed and managed due to, for example, decreased efficiency, natural limitations, high costs, slow processing and the like (Hetma ski, 2014). As the performance measurement system matures, becomes more harmonized with strategic goals and strong technological base and adequate software solutions are created, the use of the performance measurement system becomes more diverse and efficient. Moreover, it is argued that maturity of performance measurement systems leads to effectiveness in carrying out data analysis and to higher self-confidence in the usage of data (Martinez, et al., 2008).

There is no statistically significant support for hypothesis 2 – compliance of performance measures with the strategy of a company does not necessarily predict the diversity of performance measurement use. Adjustment of performance measurement systems to the strategy of a company does not necessarily mean that its use will be more diverse. Explanations for this phenomenon can be at the level of speculation. An answer can be that a balanced use of measures harmonized with the strategy creates a top-down system of control and decreases the overall dynamics (Voelpel, Leibold&Eckhoff, 2006)

Hypotheses H3a-H3d could only partially be accepted. Managerial focus on finances, customers and learning and growth are not recognized in the study as predictors of diversified use of performance measurement systems. On the other hand, managers focused on the efficiency of internal processes tend to use performance measurement systems for multiple purposes. These results, combined with the findings of Abernethy, Bouwens and van Lent (2013), point out that managers should never neglect internal processes and their reconfiguration.

Conclusion

The use of performance measurement systems is a focal point of various scholarly and practical research. This paper aimed to explore the drivers of the diversity of performance measurement use. The results show that the used independent variables explained almost 60% of the changeability of performance measure use in the examined companies. The strongest predictor of performance measures use is the maturity of the measurement system. That points to the fact that most companies have to actively work on system development and to continuously improve and upgrade the system in technical, organizational and functional senses.

Theoretical contributions of the paper are multiple. Despite the fact that the topic of business performance measuring is very current among scholars and practitioners, there are few papers that deal with the factors that affect the use of performance measurement systems. This paper adds to the scientific knowledge fund in that area. Also, the paper developed a detailed methodology for measurement of the influence of different factors on the performance measurement use. There, the refined and validated questionnaire, which was used as a data gathering tool, should especially be emphasized. Further on, studies of management accounting and control are mostly based on elaboration of a case study. This paper quantitatively processed data from 86 companies. Finally, contributions of this paper also refer to the fact that the survey was done in Serbia, where there are very few studies of this kind.

Due attention also needs to be paid to limitations and further recommendations for research. Since the study is quantitative, it has methodological shortcomings that refer to statistical techniques applied to the data. Further research should be focused on extensive in-depth analyses of the observed companies. Besides, the study is cross-structural in its nature. The focus of further research could be shifted to temporal series and following of the development of performance measurement system use.

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Receieved: January 2016.
Accepted: March 2016.

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