# PERFORMANCE MEASUREMENT SYSTEM IN THE CONTEXT OF ECONOMICS CHANGES

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## Abstract

Changes in economic conditions shape not only organizations and their business results but process and systems as well. This paper aims to disclose how changes of different economic conditions shape internal organizational environment and how those changes are reflected in performance measurement system. Experience in this field is unique in each organization. In most cases quantitative research methods have some limitations to disclose and to generalize this experience. Case study organization's performance results, changes of its values and performance system's content were analyzed in the context changes of economic environment disclosed by traditional economic measures in three time periods. Results of the research proved that economic environment could not directly impact performance measurement system. Hence there are relations between economic environment and dominating values which are reflected in performance measurement system.
*Keywords:* performance measurement, open system, changes.

## Introduction

The problem of performance measurement system's openness and fitness with external; environment is not new. Most recent management accounting researches were based on contingency approach. Studies based on this approach were conducted by Hoque and Hopper (1994), Libby and Waterhouse (1996), Alam (1997) Dent (1996), Granlund and Lukka (1998), Laitinen (1999), Anderson and Lannen (1999), Wnuk and Sobanska (2000), Haldma and Laats (2000), Luther and Longden (2001). These studies were based on conceptual contributions by Innes and Mitchell (1990), Kellet and Sweeting (1991), Coates, et al. (1992), Cobb and Helliar (1995) and Burns and Scapens (2000). Findings of that studies demonstrate that the changing environment of organisational performance has a direct impact on changes in performance measurement that in turn are realised in close connection with projects on re-organizing internal management systems (Valančienė, Gimžauskienė, 2007).

On the other hand this question becomes more important and gets different character in the context of nowadays economic tendencies. Theoretical studies performed let us maintain that performance measurement system as open system could be recognized according to objective and subjective features, which let us evaluate in what way it fits an environment and meets informational demand of managers. These features measured in particular way could become the set of criteria for recognition of performance measurement as open system. On the other hand changes of those systems are impacted by factors of macro and micro environment. Changes in world economy raise new tasks for organizations' management and for their systems as well.

The research question of this paper could be formulated as following: *How changing economic conditions impact performance measurement systems in organizations?*

**The aim is** to disclose how changes of different economic conditions shape internal organizational environment and how those changes are reflected in performance measurement system. The research method is case study. The case study organisation is a bank, a member of an international group, operating in retail and corporate banking in Lithuania. The choice of the organization was determined by two reasons. One of them is that financial institution is the first which detects changes in economy looks for adequate reaction to them. The second is that this organization has long term experience of implementation and operation of performance measurement systems.

Three time periods were chosen for this study. Those periods represent three different economic conditions that could impact performance measurement system of the organization. Economic conditions were evaluated using traditional macroeconomic measures and represents macro environment of performance measurement system. Results of organization's performance and organizational values were used to disclose microenvironment. The main elements of the system namely means used for measurement, analysis and control, planning and decision making were evaluated using particular methodology. This methodology is based on previous theoretical and empirical studies. The essence of this methodology is recognition of subjective and objective features of open system in performance measurement of the

particular organization. The tool for prime data collection was questioner that was used as a starting point for future qualitative analysis and interpretations.

Theoretical background, main presumptions and development hypothesis are presented in the first part of the paper. Research method and measures used are grounded in the second one. The third part is for comprehensive analysis and interpretations of the results.

## Theoretical background and development of hypothesis

*Formation of theoretical presumptions*

The most viable methodological approach in the cognition of organizational performance measurement is systems approach. Based on this approach it could be maintained that performance measurement process under the conditions of knowledge economy could be only functional when it operates as an open system. Performance measurement system as open system could be defined as functional, continuously improving subsystem of organization's management system which covers three dimensions of performance evaluation (measurement, analysis/ control, planning/ decision making) and leads to adaptability of organization in business environment. Environment of performance measurement system should be defined in two levels: macro and micro level. The macro environment is the conditions of business the adaptation in which must be ensured by the performance measurement system generating information. Microenvironment is organization itself (size, complexity of activities and process, values and etc.). Input of performance measurement system is data about organization's performance, bases of evaluation (benchmarks) and measures. Process of performance measurement could be defined as measurement and control. Output of performance measurement system is the information and knowledge that enables to ground managerial decisions. Performance measurement system's elements and their configuration and conformity with the environment are unique in different organizations. (Valanciene, Gimzauskiene, 2005, 2008)

On the other hand, performance measurement could be objectively based on hard measures and their interpretation (explicit knowledge) or subjectively based on experience, analytical abilities and intuition (tacit knowledge). This objectivity and subjectivity form the unique nature of performance measurement system. Objectivity forms the formal aspect of performance measurement and, accordingly, subjectivity discloses the conceptual one. Those aspects could be analyzed according to the featured elements of open system (input, process and output). Those types of systems are extreme points of performance measurement. There are no pure types in real organizations. The manifestation level of those objective and subjective aspects forms unique configurations of performance measurement system.

Presumption that performance measurement process could be objective and subjective means that measurement process could be based on hard measures and their interpretation, which leads to explicit knowledge. On the other hand it could be based on intuition and experience which leads to tacit knowledge. Performance measurement system should be evaluated based on both of those aspects as both of them are significant for the perfection of performance measurement system. Those objective and subjective open system's features could be a set of criteria diagnosing perfection level of performance measurement system. The level of objective side of performance measurement system could be recognized analyzing the ways and manner of measurement, analysis, control, planning and decision making processes. They could be organized as routines and that means that those processes are objective while ensuring explicit knowledge about organizational performance. On the other hand in some cases harmonization of interests, strategy, goals and operational tasks could be an object of subjective discussion, agreements or power. Future more those things are shaped by organizational values. The theoretical presumption of this study is that manifestation level of objectivity (formal aspect) and subjectivity (conceptual aspect) of the main performance measurement system's elements determines the perfection level of the system itself.

Perfection level of performance measurement system could be expressed as a point *(P)* the coordinates of which is manifestation level of objective and subjective features (Gimžauskienė, 2007):

$$P\ (\ X\ ,Y\ )\ =\ (\ OS\ ,\ SS\ ) \tag{1}$$

here

$$OS\ :\ \langle x_1, x_2 \ldots x_7 \rangle$$

$$SS\ :\ \langle x_1, x_2 \ldots x_4 \rangle$$

*here*
*P–perfection level*
*OS –manifestation level of objective features*
*SS – manifestation level of objective features*
*$x_n$ –sighs of systems features*

Manifestation level of objectivity and subjectivity depends on character of performance measurement in different management levels, namely strategy creation, strategy implementation and tactical- operational. In order to determine coordinates performance measurement systems state of perfection objective *(OS)* and subjective *(SS)* features should be expressed as additive function.

$$y_{os} = \sum_{i=1}^{7} ax_i \qquad (2)$$

$$y_{ss} = \sum_{j=1}^{4} ax_j \qquad (3)$$

*here*
$y_{os}$ – *objective features of performance measurement*
$y_{ss}$ – *subjective features of performance measurement*
$x_i$ – *sigh of objective system's feature*
$x_j$ – *sigh of subjective system's feature*
$a$ – *weight of system's feature*

*Development of hypothesis*

Based on theoretical presumptions listed above following hypotheses could be formulated:

**H1:** Economic conditions as macro environment factor shape organizational values as microenvironment factor.

- Conditions of economic growth determine set of featured values that are orientated to market and external and internal competition.
- Mature stage of economic cycle characterise set of values that are orientated to human recourse development.
- Conditions of economic downturn challenge values which are featured as disposition to uncertainties from one side and effective coordination and control of internal processes and recourses from the other.

**H2:** Performance measurement system reflects organization's values as internal microenvironment factor.

- Demand for new performance measurement instruments adoption is most presumptive in conditions of economic growth. Main character of organizational goals is orientation to customers and to redistribution of market for larger market share.
- Mature stage of economic cycle marks continuous improvement and harmonization of performance measurement system and experience of using it. Main character of goals is orientation to wellness of organization security and development of human resources.
- Conditions of economic downturn are time to use advantages experience of the performance measurement system for effective management of recourses and processes as one of means to survive.

The measures of micro and macro environment and method of performance system evaluation would be presented in the next part.

## Research method

Changes of performance measurement system in changing economic environment might be disclosed measuring and analyzing relation of such variables: changes of macro environment could be disclosed using macroeconomic measures; micro environment by evaluating organizational values and performance measurement system by diagnosing it perfection according to manifestation level of objective (formal) and subjective (conceptual) aspect.

*Measures of macro and micro environment*

Macro environment as condition for business could be discussed using World Bank state's economy evaluation methodology, which includes the most important economic indicators such as economic growth, inflation rate, unemployment level, FDI inflows, and general government budget position. The levels of these indicators are very important trying to identify economic cycle or competitiveness of state's business environment. The assessment of state economic situation was performed using publicly available information which was announced in annual reports of Bank of Lithuania.

Banks performance and its results analyses can be determined as valuation performed by independent valuators as central banks, credit rating agencies and etc. After deep theoretical study made by Strumickas and Valančiene (2006) about bank's performance valuation we chose credit agency position and methodology, which could be defined using indicators such as assets quality, capital adequacy, liquidity, profitability and management and other qualitative factors for competence or experience valuation. These

indicators could reflect not only banks internal politics and decisions quality, but they are very sensitive to changes of macro environment factors.

According to credit rating agencies, the assets quality is one of the main indicators showing the risk of the bank and financial sector stability. For example, "Standard & Poor's" pays attention to provisions for losses from loans, non – performing loans in loan portfolio or equity and dynamics of mentioned indicators. Moody's" analyses potential sources of cash flow in liquidity analysis. "Moody's"analysts states, that it is especially important to analyze procedures and politics of treasury. Profitability is the most important indicator due to tight correlation to cash flow, liquidity and capital adequacy. The goal of every bank is to achieve the highest profit at the lowest capital price. It determines the need of shareholders to operate using debt as much as possible. Long-term profitable activity of bank using high level of debt shows competence of management team. Credit rating agencies states that valuation of qualitative factors has heavy impact on credit analysis. Comparing to internal valuation, analysis of management is much more efficient in external appraisal. It evaluates not only profitability management but also risk management. Management quality valuation of "Moody's" includes two important factors: historical data, disclosing financial situation of bank and future strategy, created by management. (Strumickas, Valančienė, 2006).

Type of values might be determined according to competing values model and standard questioner developed by Cameron &Quinn (1998). Variables of competing values model are as following:

- Predominant characteristics of organization
- Style of leadership
- Style of human resource management
- Glue of organization
- Strategic orientation of organization
- Critical success factors

*Measurement of perfection level of performance measurement system*

Hypothetical model presented in previous chapter was chosen as methodological basis determining the perfection level organizational performance measurement process. The questionnaire technique is offered to ascertain the perfection level of organizational performance measurement. This technique will research (a) the management accounting methods, which are currently utilized in the organizational performance measurement process, (b) their interrelationship on all three levels of information integration, and (c) currently performed functions in the measurement process. The research tool should evaluate the nature and degree of concrete system attributes manifesting themselves in the organizational measurement process. According to the proposed methodology, the perfection of the measurement system is evaluated by the conformity degree of objective and subjective attributes in the measurement system to the established values of criteria (system attributes).

Data for perfection level of performance measurement system evaluation will be accumulated with the help of the questioner which helps to identify such variables as: (1) Planning process in different management levels (knowledge basis for strategy formation, content of strategic goals, and operational tasks); (2) Routines of harmonization of interests, goals and operational tasks; (3) Routines for strategy and strategic goals dissemination; (4) Measures and measurement process in different management levels; (5) Determination of principals of responsibility; (6) Routines of pre-evaluation of strategy, strategic goals and plans; (7) Routines of strategic achievements, progress and performance results control. Those data are variables of systems attributes (*complexity, hierarchy, integration degree, and orientation)* and cover either formal either conceptual aspect of performance measurement and will be systemised according to three dimensions of performance evaluation measurement control and planning (see table 1).

The accumulated information should be applied for determination of state of performance measurement system in different time moments and for evaluation the character of performance measurement system changes in relation with changes of micro and macro environment.

**Table 1.** Structure of the questioner

| Part of the questioner | Questions | | |
|---|---|---|---|
| General date about organization | <ul><li>Size, nature of activities,</li><li>Aspects of culture and values (clarity of vision, mission, management style)</li><li>Knowledge and its application about modern performance measurement systems (ABC, TQM, BSC)</li><li>Level of IT application, quality and satisfaction</li></ul> | | |
| *Performance level* | *Planning* | *Measurement* | *Control* |
| Perfection of performance measurement system in strategy creation level. | Process of strategic planning:<ul><li>Content of informational basis. *(complexity)*</li><li>Routines of interests harmonization *(horizontal integrity)*</li><li>Routines of strategy dissemination *(vertical integrity)*</li></ul> | Measures for strategy and long term plans expression *(complexity)* | Determination of principals of responsibility for strategy implementation *(hierarchy)* |
| Perfection of performance measurement system in strategy implementation level | Process of strategy implementation:<ul><li>Content of strategic goals *(complexity)*</li><li>Routines of goals harmonization *(horizontal integrity)*</li><li>Routines of goals dissemination *(vertical integrity)*</li></ul> | Measures of strategic goals expression and achievements measurement *(complexity)* | Determination of principals of responsibility for strategic achievements *(hierarchy)* |
| Perfection of performance measurement system in tactical and operational levels | Process of tactical and operational planning:<ul><li>Content of operational tasks *(complexity)*</li><li>Routines of operational tasks harmonization *(horizontal integrity)*</li></ul> | Performance measurement in value chain *(complexity)* | Determination of principals of responsibility for performance *(hierarchy)* |

# Results

*Changes of macro environment*

According to statistic data (see table 2) we could maintained that 2003 year was starting point of economy growth after crises of Russia, which shocked Lithuanian organizations. The country's stability and consistent economic growth was very important for closer connection with the European Union in 2004. 2006 was a year of extraordinary growth for the whole of Lithuania and also financial market. Lithuanian people had a real experience of the advantages offered by: stable economic growth (about 7 percent), decrease of unemployment rate (from 12.4 percent in 2003 year to 5.6 percent in 2006) and increased amount of foreign investment (6 times comparing 2003 and 2006 years). Possibilities of economic growth and reinforcement of the country's competitiveness determined the place of Lithuania as all Baltic States countries on the economic map of Europe as emerging market. 2007 year was year of potential changes economy coming to overheated status.

**Table 2.** Macro environment indicators

| Indicators | 2003 | 2006 | 2008* |
|---|---|---|---|
| Economic growth, % | 10.2 | 7.8 | 3.2 |
| Inflation rate, percent | 1.3 | 5.1 | 10.4 |
| Harmonized unemployment level, % | 12.4 | 5.6 | 5.6 |
| Current account, % of GDP | -6.8 | -10.6 | -12.6 |
| FDI inflow, % of GDP | 1.0 | 6.0 | 3.6 |
| General government budget position, % of GDP | -1.3 | -0.4 | -2.9 |
| General government debt, % of GDP | 21.1 | 18.0 | 17.2 |

*\*Forecast*
*Data source: Bank of Lithuania (2003, 2006, 2008)*

In 2008 Lithuanian economy was moving toward recession after shook of the global financial system. However the global financial and economic crisis has made the outlook for this economy much worse and

now the possible outcomes are bad. Domestic factors are now less important than external ones, as external financing and expectations are those which set the scope of actions in the region. Inflation rate reached 10.4 percent, FDI inflow decreased about 2 times comparing it to 2006 year, general government budget deficit reached ~3% of GDP and thus fit under Maastricht criteria. The hardest period was 4th quarter of 2008 that means our expectation of Lithuanian economy development had worsened significantly: declining economic growth, problem of liquidity, rising unemployment, soaring fiscal deficit are reality and necessity of our government. Negative processes in the economy mean that prices of goods, services, labors and assets will continue to fall, and annual deflation a very possible scenario in 2009. The global economic situation will make it extremely difficult to increase exports, but weak domestic demand and shrinking external financing will mean a fall in the amounts of imports, which will end up with a significant improvement in foreign balances. The governments' opportunities to help their economies are narrow and hence they have concentrated mostly on stabilizing financial sector and then, if possible, helping businesses.

Summarizing macroeconomics overview in Lithuania we could maintained that selected research periods included different stages of economic cycle. Changes in Lithuanian economy changed general conditions for doing business. It is in line with world wide tendencies. 2006 was a year of extraordinary growth for the whole of Lithuania. Looking at 2008, we can see that this was a year of macroeconomic down turning. Lithuania has a tendency of recession, because state's indicators showed declining economic growth, rising inflation rate and unemployment level, also soaring fiscal deficit. Business conditions of all organization and especially to financial sectors institutions changed significantly influenced by global and internal factors. The business conditions changed from very positive to very hard and restricted. Economic uncertainty raised new challenges and tasks for management teams such as new coordination policy of performance measurement systems and review of decision making processes trying to achieve performance efficiency.

*Changes of organizations micro environment*

**Analysis of organizations performance results** The assessment of bank performance results was performed using publicity available information-financial statements, annual reports for shareholders, annual reports of auditors. As the Lithuania's economy grew, the Lithuanian business awaked and from 2003 year demonstrated very positive financial results (see table 2). The factors which contributed to the achievement of a better result by observed Bank the growth of the volume of lending and saving services, alongside with the increasing popularity of self-service channels. Net profit generated in Bank, amounted to LTL 381,1 million in 2008. This is by LTL 158.2 million more than earned in 2006 and 6 times more than in 2003. According Board Chairman of bank the main reasons of such profitability was implementation of responsible lending policy, reduction of costs, and appropriate attention paid to the improvement of our performance efficiency in recent year (Bank annual reports, 2008). Bank's team actively invested into operating efficiency programmes which guaranteed adequate management of costs. Bank succeeded in saving also in other areas – instead of further development of branch network, the more attention was paid to the quality of services and self-service channels; seeking to make maximum use of the organization's potential.

Pursuing sustainable crediting policy and having regard to the macroeconomic situation and related threats, Bank limited the growth of its financial portfolio. As of 31 December 2008, its financial portfolio amounted to LTL 19,6 billion, having grown by 6 percent during the year than in 2003-2007 the average growth of financial portfolio accounted for 50 percent. Every research period ROE of Bank had growing tendency and in 2008 reached 21,1 percent. Bank's assets value raised ~4, 25 times from 2003 to 2008 and return on assets decreased not significantly only in 2008. Analyzing banks assets quality we should maintained that bad financial market situation in 2008 influenced that the number of special provisions increased 3 times and was LTL 109,2 million. Due to the situation existing in the market banks started paying greater attention to the assessment of their clients' risk and therefore the amount of provisions against such risk increased. In 2008, the ratio of specific provisions to loan portfolio was 1.04 % (in 2006 -0,27 percent, in 2007 – 0,8 percent ). The tendency of the growth of numbers of defaulting clients of the bank is currently observed in the whole market and the forecast it being even bigger. Uncertainty in the global markets and worsening macroeconomic indicators of Lithuania forced individuals and companies to change their established saving habits. That means that financial results of bank will be much worse next year.

In 2008 bank the number of employees decreased by 7 % from 2007 level. Comparing staff number in 2003 and 2008 it increased about 50 percents. Staff turnover in 2006 was caused by growing network of bank's departments; in 2008 decreased amount was caused by the latest improvement of performance

efficiency and natural staff turnover. From 2003 to 2008 capital adequacy rate was from 9,2 to 14,6 percent. In 2008 capital adequacy ratio of Bank, which reflects stability of banks, was over 12 percent when Lithuanian bank's norm is 8 percent.

**Table 3.** Financial results of Bank

| Indicators | 2003 | 2006 | 2008 |
|---|---|---|---|
| Total Assets, LTL bn | 6.0 | 14.1 | 25,5 |
| Financial portfolio, LTL bn | 3.5 | 12.6 | 19,6 |
| Net profit, LTL million | 60.9 | 223.5 | 381,1 |
| Provision, LTL million | 25.8 | 34.0 | 109.2 |
| Liquidity, percent of financial portfolio | 43.2 | 48.4 | 35.2 |
| Capital adequacy, percent | 14.6 | 9.2 | 12.1 |
| ROE, percent | 16.0 | 20.6 | 21,1 |
| Return on assets, percent | 1 | 1.6 | 1.5 |
| Staff number | 2218 | 3177 | 3361 |

*Source: Bank annual reports (2003, 2006, 2008)*

Summarizing the bank's financial results could be maintained for 2003-2008 years bank showed growing tendencies and better financial results every period: significant growing of financial portfolio, assets amount, return on equity and profit. Tendencies of declining growth of Lithuanian economy and uncertainty in the global markets influenced assets quality and liquidity indicators results (increased provision level, decreased return on assets and liquidity) only in 2008. Business inertia didn't allow decline value of profitability and growing indicators in 2008. It will be more visible in 2009.

**Analysis of organizational values** Based on qualitative research results it could be maintained that organizations values have changed in analyzed periods of time (see table 4). The external environment could be one of the factors empowering those processes. The dominating sets of values in 2003 (3.13) and 2006 are rational goal. The first time period marks the starting year of economic growth after Russian crisis impact and orientation to external opportunities while attempting to get the larger market share, to attract customer and ensuring development and growth of the organization. Those goals could be achieved through internal competition and rational control. That is the character of rational goal set of values. In 2006 the dominated values remain the same (2.75). On the other hand at this time organization became more balanced as manifestation level of all types of values is quite similar. The featured result of this time is that next to rational goal set of values is human relations values (2.38).

**Table 4.** Changes of dominating values

| Values | 2003 | 2006 | 2008 |
|---|---|---|---|
| Human relations | 2,38 | 2,38 | 2,46 |
| Open system | 2,83 | 2,17 | 2,88 |
| Rational goal | 3,13 | 2,75 | 2,17 |
| Internal process | 1,75 | 2,42 | 2,50 |
| Dominated set of values | Rational goal | Rational goal | Open system |

The goals of development of the people could be noticed in annual report of that time. Organization attempted to become better employer. 2006 was the year of mature economic growth and the year when wellness of the organization enlarged. It seems logical that organization took care of its employees. 2008 marks the starting point of economic downturn. Though the results presented in previous section does not show the dramatic changes but organization itself has prepared to react to indefinite external conditions. Open system's values (2.88) characterize organization as unpredictable and dynamic that looks for and tests new opportunities as crisis is good time for the new start.

On the other hand next to open systems score is internal process values (2.50) score. It could be noticed that in 2008 manifestation level of bureaucracy is the biggest during period analyzed. This quite

different set of values is readiness to manage organizations internal potential ensuring effectiveness of existing business.

*Changes of organizations performance measurement system*

Researches of the performance measurement system were performed in 2003, 2006 and 2008. In all cases four respondents of different management levels were interviewed *(manager of customer service centre; experts of financial analysis and planning department; CEO of region and top level manager)*. This choice was determined by a presumption that the objective situation could only be revealed summarizing information and opinion from different management levels. Respondents of lower management level were interviewed using a structured questionnaire (the same that was used for the values analysed and was presented in the previous section). Top managers answered the same questions and made comments, which let us better understand the situation and make interpretations and conclusions.

In order to evaluate out the objective (formal) side of the system types of measures, set of goals and plans were analyzed in strategic and operational levels first of all. Those variables form the complexity of the system. The more goal and plans are formulated and prepared the more measures should be used the more complex the system is. This feature composes 40% of additive measure of systems objectivity. Beside this principal of responsibility and accountability were handled as objective side of the system (20% of additive measure of systems objectivity). From subjective (conceptual) point of view orientation of the system was analyzed. Orientation shows weather the organizational values are reflected in organizations strategy and goals, to what level are they measured and evaluated. This feature composes the 60% of additive measure of systems subjectivity. The connecting link between objectivity and subjectivity is systems horizontal and vertical integration. The first one marks the way organization succeeds to harmonize different interests, goals and tasks. The second one discloses how organization ensures dissemination of strategy and goals to lower management levels and everyday life of employees. Those features compose 20% each in both objective and subjective measure. If organization has routines and procedures for those activities it was handled that it is objective feature. If managers harmonization and integration ensure by personal agreements with the help of experience or power that is handled as subjective side of the system. The objective integrity means that it is based in conceptual level as well.

Results of the survey let us prove that new performance measurement instruments adoption is order in fast economic growth conditions, as the perfection level of the system according to objective and subjective features is at the highest score (OS 1137 and SS 1354). On the other hand the difference between the objective and subjective features is at the highest expressed score as well. This means that at that time organization tried to apply the great number of different measurement tools from one side but part of them were left at conceptual level. The score of systems complexity is 508. This feature let us disclose the content *(strategies, goals, measures)* of the system. Horizontal and vertical integrity of the system shows the way organization ensures harmonization of interests, goals, tasks and dissemination of them through management levels. The score of horizontal integrity shows that harmonization activity at that time was more conceptual than formal (175, 275). Situation with vertical integrity is different and that means that organization had routines for goals and tasks dissemination but they were not proved conceptually. Those interpretations based on quantitative analysis could be proved in qualitative way. Application of modern performance measurement system balanced scorecard (BSC) was at the starting point and most of BSC tools worked either not as routines or were rejected as useless. Based on qualitative observations and interviews it could be noticed great attention to financial, market and customers goals and measures. This is in line with features of rational goal values. Analysis of performance measurement system at 2006 time period disclosed character of performance measurement system in mature stage of economic cycle. Lower level of organizations perfection level and lover level of difference between objective and subjective features disclosed character of performance measurement system's changes. It was the time of improvement and harmonization the system when experience of systems application grew up, the most informative useful tools were accepted and inadequate were rejected (score of systems complexity is lower 445).

Horizontal and vertical integrity became more perfected in formal and conceptual basis. From interviews and qualitative observation it could be added that main attention was put on employees and their development. Besides this it was time when balanced scorecard and activity based costing systems became routines in the organization.

Growing manifestation level of objective systems features could be handled as organization's reaction to economic downturn conditions. It could be explained as systems orientation to effective management of

recourses and processes. And this is in line with changing organizational values when organization is at the particular level of external uncertainties and looks for harder control and coordination of activities. The lover difference between objective and subjective features shows the system as harmonized and balanced applying its experience of performance measurement into management process.

**Table 5.** Changes of dominating values

| Features | 2003 | 2006 | 2008 |
|---|---|---|---|
| **Objective features:** | **1137** | **1079** | **1083** |
| • Complexity (content of strategies, goal and measures) | 508 | 445 | 424 |
| • Hierarchy (principals of responsibility and accountability) | 238 | 290 | 258 |
| • Horizontal integrity (routines for interest, goals and tasks harmonization) | 175 | 200 | 225 |
| • Vertical integrity (routines for values, strategy and goals dissemination) | 216 | 144 | 176 |
| **Subjective features:** | **1354** | **1194** | **1176** |
| • Orientation (conceptual basis for measurement) | 900 | 800 | 775 |
| • Horizontal integrity (subjective ways for interest, goals and tasks harmonization) | 275 | 225 | 225 |
| • Vertical integrity (subjective ways for values, strategy and goals dissemination) | 179 | 169 | 176 |
| **Difference between subjective and objective features** | **217** | **115** | **93,5** |

Summarizing results of the research it could be maintained that identified changes of the performance measurement system are not drastic and gets evolutional character. The main reason is that the analyzed system was at high perfection level from the first time period observed. But on the other hand the character of changes is in line with changes of economic conditions. However those relations could not be observed directly as macro environment impacts organizational factors (values) which are reflected in organization's performance measurement system.

## Conclusions

1. **Economic conditions are enabling factor for unique configuration of objective and subjective features of open performance measurement system in each organization.**
   Configuration level of subjective and objective features defines the level of systems perfection. They could be measured identifying such variables as complexity (content of strategies, goal and measures); hierarchy (principals of responsibility and accountability) horizontal integrity (routines or other subjective ways for interest, goals and tasks harmonization); vertical integrity (routines or subjective ways for values, strategy and goals dissemination).
2. **According to results of empirical research it could be maintained that macroeconomics' conditions shape organizational values which are reflected in performance measurement system that is a mean to achieve financial results. Those relations could not fit perfectly in time as those factors have causal character.**
   Economic growth determines set of rational goal values. That was proved by objectively (3.13) by research results and subjectively based on declaration in annual report. The perfection level of that time is in the highest level and this could be explained by growing demand for new performance measurement instruments adoption that are orientated to market and external and internal competition. On the other hand the difference between objective and subjective features is the largest and this means that the system is underbalanced yet.
   Mature stage of economic cycle determines rational goal set of values (2.75) but it is less expressed than in previous period. More balanced values and expressed human relations values is in line with declaration in annual report. A little bit lower perfection level and twice lower difference between objective and subjective features could be explained the improvement and harmonization of the system and experience of its application.
   Conditions of economic downturn determine open system (2.88) set of values which express the growing environmental uncertainties' level. The growing score of internal process set of values (2.50) marks attempt for control of internal processes and recourses.

**Economic environment could not directly impact performance measurement system. Hence there are relations between economic environment and dominating values which are reflected in performance measurement system.**

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