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Toward Contingency Theory of performance measurement*

Adriana Rejc**

Performance measurement, although extensively studied in the last two decades, has been given relatively little consideration in terms of the factors that influence the design of performance measurement systems. Few organisations appear to have systematic processes in place for managing the evolution of their measurement systems and few researchers appear to have explored the question, what determines the design of an organisation's measurement system? The paper addresses this gap by providing empirical evidence on performance measurement contingencies based on a sample of large Slovenian companies.

In den letzten Jahren sind in der Entwicklung von Performance-Messung als einer wissenschaftlichen Disziplin grosse Fortschritte erzielt worden, aber mangelhaft aus der Perspektive von Faktoren, die auf die Bildung von Performance-Messungssystemen Einfluss ausüben. Wenige Unternehmen entwickeln systematische Prozesse, um die Evolution der Performancemessungssystemen zu leiten und auch wenige Forscher setzen sich mit der Frage auseinander, wodurch das Design eines Performance-Messungssystems determiniert wird. In diesem Artikel werden die empirischen Daten aufgrund einiger slowenischen Mustergroßunternehmen ermittelt.

Key words: performance measurement, contingency theory, companies, Slovenia

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1. Introduction

Since the late 1980s performance measurement has become very topical with ever-increasing interest in the subject. The increasing interest has been driven by the increased rate of change in the business environment in both the private and public sectors (McAdam/ Bailie 2002). According to Bourne et al. (2000) this rapid change has led to general dissatisfaction with traditional backward looking performance measurement systems, identifying their shortcomings and arguing for change. In his Performance Measurement Manifesto, Eccles (1991) suggested that it would become increasingly necessary for all major businesses to evaluate and modify their performance measures in order to adapt to the rapidly changing and highly competitive business environment. He questioned the dominant role of financial performance measures and proposed the shift from treating them as the foundation for performance measurement to treating them as one among a broader set of measures. Numerous other authors (Johnson/ Kaplan 1987; Garrison 1990; Kaplan/ Norton 1992; Maskell 1992; Hronec 1993) laid out arguments against judging performance based solely on financial criteria. They highlighted the failure of financial performance measures to reflect changes in the competitive circumstances and strategies of modern organisations. Businesses today require better information across a wider scope than that of the traditional, and often linear, financial measures, to achieve understanding of the factors that create the foundations of future success. While profit remains the overriding goal, it is considered an insufficient performance measure, as measures should reflect what organisations have to manage in order to profit.

Consequently, attention in practitioner, consultancy and academic communities has turned to how organisations can replace their existing, traditionally cost based, measurement systems with ones that reflect their current objectives and environment (Kennerly/ Neely 2002). Many frameworks have been proposed to help organisations define a set of measures that reflects their objectives and assesses their performance appropriately, such as the SMART pyramid (Lynch/ Cross 1995), the balanced scorecard (Kaplan/ Norton 1996), or the stakeholder approach to performance measurement (Atkinson/ Waterhouse/ Wells 1997). Overwhelmingly, the frameworks are multidimensional, explicitly balancing financial and non-financial measures, leading and lagging indicators, and relating performance measures with the corporate (business) strategy.

The issue of effectiveness of the contemporary performance measurement released mainly through the empirical evidence of analysed companies spread quickly among managing directors. Some of the frameworks, particularly the

balanced scorecard, achieved great popularity.¹ Altogether, between 40 and 60 percent of companies significantly changed their measurement systems between 1995 and 2000 (Frigo/ Krumwiede 1999). Although one cannot deny the relatively massive process of performance measurement transformation that has taken place in the last couple of years, the data imply that numerous managing directors still consider traditional performance measurement to be appropriate. So far, we are lacking empirical evidence of factors that influence the implementation of contemporary performance measurement. The question to be answered is, therefore, why some organisations design and implement contemporary performance measures while others do not. The article attempts to address this gap in the literature by presenting data that describes the forces that shape the choice of performance measures.

The paper consists of a further four sections. The next section discusses the theoretical background for the contingency theory of performance measurement. The basic characteristics of the contingency theory of management accounting are laid out and the literature regarding the evolution of performance measurement systems is reviewed. Descriptions of the research methodology, the empirical evidence from large Slovenian companies and the resultant framework of contingency factors affecting performance measurement are then presented. The discussion is followed by implications for future research that are drawn in the final section.

2. The contingency theory of performance measurement

2.1. The contingency theory

The foundations of contingency theory stem from the systems approach that established itself as a popular tool for studying organisations in the 1950s. The central feature of the open systems approach is that it seeks to study the activities of an organisation by reference to the context of the wider environment in which it is set (Emmanuel et al. 1990). Whereas nearly all previous work in organisational research had been universal in approach, seeking the single best organisational solution, much of the work conducted in the late 1950s and early 1960s noted that particular forms of organisation were

¹ According to Downing (2001:17), 52 percent of all companies world-wide are already using the balanced scorecard (BSC), another 21 percent of companies are about to introduce this performance measurement framework, whereas 23 percent of them are considering the introduction of the BSC. An American study reveals that 60 percent of the Fortune 1000 companies introduced the BSC by the end of 2001 (Gartner Group 2001). Studies from the UK also confirm the companies' interest for multidimensional performance measurement: 39 percent of FTSE 1000 companies implemented the balanced scorecard (Tonge et al. 2000).

best suited to particular environmental conditions. Burns and Stalker (1961) had noted the appropriateness of mechanistic and organismic forms of organisation to stable and dynamic technological environments, respectively. A study of Woodward (1965) had found it necessary to recommend different principles of management depending upon the nature of the production process. Chandler (1962) had discovered a link between the corporate strategy selected by a firm and the organisational structure appropriate to its effective implementation. All these results indicated that there was no single form of organisation that was best in all circumstances. In its present state, the contingency theory (of organisations) may best be described as a loosely organised set of propositions which in principle are committed to an open systems view of organisation, which are committed to some form of multivariate analysis of the relationship between key organisational variables as a basis for organisational analysis, and which endorse the view that there are no universally valid rules of organisation and management (Burrell/ Morgan 1979).

2.2. The contingency theory of management accounting

The reason to consider management accounting before turning to performance measurement lies in the fact that both fields are closely related. Accounting information is provided by the accounting information system, is routinely generated, transmitted through formally defined channels, and quantitative in nature. Most of them are financial. Performance measures, on the other hand, encompass qualitative information, too, and are provided by different, not only accounting, information systems. In terms of their perspective, performance measures cover a wider range of both the financial and non-financial information, thus requiring to be treated as a separate (non-accounting) concept. However, performance measurement (management) as field of study is still in the phase of evolving into a separately identifiable academic 'sub-discipline' (Beasley/ Thorpe 2002). Management accounting, on the other hand, already exists as such, and one can find reference to contingency theory in the accounting literature already from the mid-1970s on.

The contingency approach to management accounting is based on the premise that there is no universally appropriate accounting system that applies equally to all organisations in all circumstances (Otley 1980). Rather, it is suggested that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organisation finds itself. Thus a contingency theory must identify specific aspects of an accounting system, which are associated with certain defined circumstances and demonstrate an appropriate matching (Emmanuel et al. 1990). Based on a review of the relevant literature, Emmanuel et al. (1990) summarises three main classes of contingent factors that have been identified as influencing the design of an accounting system: the environment, organisational structure and technology. Relevant features of an organisation's *environment* affecting accounting system design that have been

suggested include its degree of predictability, the degree of competition faced in the market place, the number of different product/markets encountered, and the degree of hostility exhibited. *Structural features* proposed include size, interdependence, decentralisation and resource availability. *Technological factors* include the nature of the production process, its degree of routineness, how well means-end relationships are understood and the amount of task variety. Of these, environmental factors have most often been researched. Additional research focused on two other factors, strategy and culture. A consideration of *corporate strategy* has, rather surprisingly, not been prominent in studies of control design despite some arguments that differences in corporate strategies should logically lead to differences in planning and control systems' design (see Dent 1990). More often, the influence of *organisational culture* on control systems is researched. Emmanuel et al. (1990) mentions some of them (see also Ansari/ Bell 1991).

2.3. Performance measurement and the contingency theory

Performance measurement, although extensively studied in the last two decades, has been given relatively little consideration in terms of the factors that influence the design of performance measurement systems. A brief overview of the relevant existing literature will give some insight into the topic.

Wisner and Fawcett (1991) were among the first to acknowledge the need for performance measures to be reviewed and changed to ensure that measures remain relevant. They highlight the need to re-evaluate the appropriateness of the established performance measurement systems in view of the current competitive environment. Dixon et al. (1990) argue that organisations need a process in place to ensure that measures and measurement systems are reviewed and modified as the organisations' circumstances change. Meyer and Gupta (1994) observe that measures tend to lose their relevance and ability to discriminate between good and bad performance over time. They argue that failure to manage this change effectively causes the introduction of new measures that are weakly correlated with those currently in place so that an organisation will have a diverse set of measures that do not measure the same thing. According to Lynch and Cross (1995), it is important that performance measurement systems be dynamic, so that performance measures remain relevant and continue to reflect the issues of importance to the business. Bititci et al. (2000) identify the need for performance measurement systems to be dynamic to reflect changes in the internal and external environment. Similarly, Bourne et al. (2000) suggest measurement systems should be reviewed and revised. They identify the need to review targets and performance against them; individual measures as circumstances change; and the set of measures to ensure that they reflect the strategic direction.

Although the authors point to the potential obsolescence of performance measurement systems, they do not discuss any contingencies as to when an organisation should implement new performance measures. Waggoner et al. (1999) are better in this regard as they summarise key forces driving and demanding change in performance measurement: customers, information technology, the marketplace, legislation (public policy), new industries, nature of work (e.g. outsourcing) and future uncertainty. These forces present act as a kind of trigger, either internal or external, that starts the process of performance measurement transformation. However, empirical evidence to support these propositions is still needed.

We start our empirical research with the notion that the contingency theory of performance measurement is in accord with practical wisdom. Based on the premise that there is no universally appropriate performance measurement system applicable to all organisations in all circumstances, we attempt to identify the specific aspects of a performance measurement system that are associated with certain defined circumstances and to demonstrate appropriate matching.

3. Factors influencing the design of performance measurement - evidence from large Slovenian companies

3.1. Research approach

Research on performance measurement was launched in December 2000. The survey was based on a sample of large Slovenian companies and was intended to find important and distinct factors influencing performance measurement systems design.

3.1.1. Sample

Using the financial statements database of the entire Slovenian population of companies provided by the Agency of the Republic of Slovenia for Payments, we identified all companies that met the three size criteria for large companies as determined by the Companies Act. The selection criteria were: (1) revenues amounting to EUR 5.6 million and over; (2) assets amounting to EUR 2.8 million and over; and (3) the number of employees amounting to 250 and over. The total number of large companies was 265.

Information on performance measurement systems had to be obtained from questionnaires. The questionnaire was first tested by a personal interview with the managing directors of six large Slovenian companies operating in different industries and located in different regions. Other managing directors were contacted personally by telephone, informed of the purpose and goals of the research and asked to participate in the research. Through the personal contacts

we sought to obtain the managing director's personal agreement - or that of another member of the Board of Directors - to participate, as this was crucial to the quality of our research. Finally, we posted questionnaires in December 2000 and January 2001. March 2001 was the cut-off date. Altogether, 150 companies returned their questionnaires, representing a response rate of 58%.

3.1.2. Variables

Our analysis was based on two groups of variables. Independent variables, relating to individual characteristics of the companies and their business environments, were selected on the basis of hypotheses that are presented below. To hypothesise contingencies, mainly the contingency theory of management accounting and the theoretical background from performance measurement literature has been considered. The following independent variables have been included: competitiveness of the product markets, power of unions in the industry, impacts of production on the environment, size of the company, corporate strategy, and ISO 9000 (see Table [2] in Appendix).

Since questions relating to performance measures were posed in terms of the importance of individual variables within the performance measurement system, Likert scales were used. The measurement scale varied from 1 (not important at all) to 5 (very important).² All variables were measured at the company level. Means, standard deviations and frequencies of individual variables are presented in Table 1 in the Appendix. By grouping individual performance measures and calculating their means we then formed dependent variables (see Table 3 in the Appendix).

3.2. Research findings on contingent factors

Propositions were based on assumptions that the contingent factors' influence could be detected by looking at the means of dependent variables. The null hypothesis assumes an equality of sample means and the alternative hypothesis that the means are not equal. Hypotheses were tested using either Independent-Samples T-Test procedure (when there were only two groups of companies) or the One-Way ANOVA procedure (when there were more than two groups of companies) with a significance level of $\alpha=0.05$.

3.2.1. Competitiveness of the business environment

Proposition 1: Managing directors of companies from less competitive business environments consider traditional financial measures to be more important than do managing directors of other companies.

² According to the strict statistical definition, our variables are ordinal, however a general approach in social- and business studies is to assume variables measured by Likert's scale to have interval metrics.

It is hypothesised that in stable, less competitive business environments traditional performance measures may well serve their purpose, whereas, in competitive and dynamic environments, reliance on primarily non-financial (leading) performance measures is necessary. Gordon and Miller (1976) similarly proposed that in the face of severe competition or market hostility, a more sophisticated information system was required, incorporating non-financial information. The competitiveness of the business environment was measured by two independent variables: the average number of competitors in the main product markets (COMP_MAR) and the cumulative market share of the three largest competitors in the main product market (MAR_SHAR). Dependent variable TRAD_PER is described in Table 3 in the Appendix.

Table 1. ANOVA test

Proposition 1a (ANOVA)	Sum of squares	df	Mean Square	F	Sig.
Between groups	.419	2	.209	.942	.392
Within groups	32.251	145	.222		
Total	32.670	147			

In the first case (proposition 1a), the companies were classified into four groups: no competitor (0); one to five competitors (35); six to ten competitors (41); and more than ten competitors (72). The null hypothesis assumes equal means for companies from all groups. According to the One-Way ANOVA procedure (see Table 1), the null hypothesis cannot be rejected ($\alpha=0.392$).

In the second case (proposition 1b), companies were divided into two groups. The first group consisted of companies competing in the product market where the cumulative market share of the three largest competitors is less than 26%; other companies comprise the other group. The null hypothesis assumes no differences in means among the two groups. Independent-Samples T-Test procedure was used. As it can be seen from the Table 2, the calculated t does not exceed the critical tabled value for 1-tailed test and the null hypothesis cannot be rejected ($\alpha=0.299$). Results from both tests imply that even managing directors of companies competing in less competitive environments (the reader should note that no company operates as a monopolist) are aware of the strengths arising from relying on both financial and non-financial performance measures.

3.2.2. Power of unions

Proposition 2: Managing directors of companies competing in industries with powerful unions consider non-financial measures concerning employee satisfaction more important than do managing directors of other companies.

It can be argued that the existence of powerful interest groups in the organisation's environment increases the level of uncertainty it faces.

Researchers (Emmanuel et al. 1990) have referenced environmental ‘stress’ and ‘aggressiveness’ of the unions as influencing control reports. Consequently, it is hypothesised that powerful unions more strongly impact on managing directors’ attitudes toward employee satisfaction, employee development and compensation. The power of unions was measured by two independent variables: the level of unions’ organisation (ORG_UNIO) and the bargaining power of unions (POW_UNIO). Dependent variable EMPL_PER is described in Table 3 in the Appendix.

Table 2. Independent-Samples Test

Proposition 1b (I-Samples Test)		F	Sig.	t	df	Sig. 2-tailed
Levene’s Test for Equality of Variances	Equal var. assumed	4.661	.032			
	Equal var. not assum.					
t-test for Equality of Means	Equal var. assumed			.584	146	.560
	Equal var. not assum.			.529	17.690	.598

In the first case (proposition 2a), companies were separated into two groups: companies from industries where unions are well-organised (133); and other (17). The null hypothesis assumes no differences in means among the two groups. Independent-Samples T-Test procedure was used. Calculated t exceeds the critical tabled value for 1-tailed test (see Table 3) and the null hypothesis is rejected ($\alpha=0.013$).

In the second case (proposition 2b), managing directors were asked to estimate the bargaining power of unions in defining the workers’ rights, workers’ salaries and working conditions. Companies with the average estimate above 3,5 (the scale range was from 1-not influential at all to 5-very influential) comprise the first group, and other companies form the second group. The Independent-Samples T-Test procedure was used. Calculated t exceeds the critical tabled value for 1-tailed test (see Table 3) and the null hypothesis can again be rejected ($\alpha=0.0385$).

Results from both tests indicate that managing directors from industries with organised and powerful unions pay more attention to performance measures of employee satisfaction than do those from industries where unions are not well organised and are not powerful.

3.3.3. Environmental impacts

Proposition 3: Managing directors of companies whose business activities have important effects on the natural environment consider non-financial measures

that reflect environmental aspects and a company's public reputation to be more important than do managing directors of other companies.

Table 3. Independent-Samples Tests

Proposition 2a (I-Samples Test)			F	Sig.	t	df	Sig. 2-tailed
Levene's Test for Equality of Variances	Equal var. assumed		2.743	.100			
	Equal var. not assum.						
t-test for Equality of Means	Equal var. assumed				2.250	148	.026
	Equal var. not assum.				1.666	17.909	.113
Proposition 2b (I-Samples Test)			F	Sig.	t	df	Sig. 2-tailed
Levene's Test for Equality of Variances	Equal var. assumed		4.789	.030			
	Equal var. not assum.						
t-test for Equality of Means	Equal var. assumed				1.779	148	.077
	Equal var. not assum.				1.710	113.334	.090

Several authors (Epstein 1996; De Burgos Jimenez/ Cespedes Lorente 2001) justify the need to include environmental performance as a new dimension of performance so as to achieve sustainable development. The notion of sustainable development, however, has been established in firms in order to redefine their social and environmental responsibilities. It is, therefore, hypothesised that in companies with technologies that have considerable impact on the natural environment, managing directors are concerned to measure and report on corporate environmental performance. Companies have, accordingly, been divided into two groups (for the independent variable, see Table 2 in the Appendix). The first group consists of those companies that have acquired the ISO 14001 certificate or are in the process of acquiring it (89 altogether). The second group comprises all other companies (55). The dependent variable

(ENVI_PER) is described in Table 3 in the Appendix. The null hypothesis assumes no differences in the group means. The Independent-Samples T-Test procedure was applied. According to the sample evidence (see Table 4) the null hypothesis is rejected ($\alpha=0.001$). There is a statistically significant difference in the mean values between the two groups. The result indicates that managing directors of companies that already have or are in the process of acquiring the ISO 14001 certificate consider performance measures of environmental impacts and corporate reputation to be more important than those managing directors who do not assume the ISO 14001 to be decisive for doing business.

Table 4. Independent-Samples Tests

Proposition 3 (I-Samples Test)		F	Sig.	t	df	Sig. 2-tailed
Levene's Test for Equality of Variances	Equal var. assumed	1.545	.216			
	Equal var. not assum.					
t-test for Equality of Means	Equal var. assumed			3.093	142	.002
	Equal var. not assum.			2.955	98.186	.004

3.2.4. Size

Proposition 4: Managing directors of companies with more than 500 employees consider non-financial performance measures relating to employee satisfaction to be more important than do managing directors of other companies.

According to the Slovenian Law on Workers' Co-management, employees are entitled to a representative on the Board of Directors if the total number of employees exceeds 500. The influence of employee representatives in Board of Directors' decision-making is further stipulated by the Companies Act. It is, therefore, hypothesised that employees' interests are better represented and secured in large companies than in medium-sized or small companies. However, since the third criterion for large companies is that they have 250 or more employees, the employee representative is not necessarily a member of the Board of Directors in all cases. Therefore, two independent variables were introduced: the presence of the employee representative in the company (EMPL_REP) and the role of the employee representative – either being a member of the Board of Directors or not (ROLE_REP). The dependent variable is again ENVI_PER (see Table 3 in the Appendix).

In the first case, companies were divided into two groups: companies with an employee representative (26), and others (124). The null hypothesis assumes no differences in the means between the two groups. The Independent-Samples T-

Test procedure was used. According to results from Table 5, for proposition 4a, the null hypothesis cannot be rejected ($\alpha=0.194$).

Table 5. Independent-Samples Tests

Proposition 4a (I-Samples Test)		F	Sig.	t	df	Sig. 2-tailed
Levene's Test for Equality of Variances	Equal var. assumed	.720	.398			
	Equal var. not assum.					
t-test for Equality of Means	Equal var. assumed			.864	148	.389
	Equal var. not assum.			.736	31.686	.467
Proposition 4b (I-Samples Test)		F	Sig.	t	df	Sig. (2-tailed)
Levene's Test for Equality of Variances	Equal var. assumed	3.503	.075			
	Equal var. not assum.					
t-test for Equality of Means	Equal var. assumed			-1.638	22	.116
	Equal var. not assum.			-1.176	6.808	.279

In the second case, companies comprising the first group (with an employee representative) were divided into two further groups: companies where the employee representative is a member of the Board of Directors (17), and the rest (7). The Independent-Samples T-Test procedure was used. Calculated t does not exceed the critical tabled value for 1-tailed test (see Table 5, proposition 4b) but is close to it ($\alpha=0.058$). As the first test implies, companies with an employee representative do not pay more attention to performance measures concerning employee satisfaction than companies without a representative. However, when the role of the employee representative as a member of the Board of Directors is considered, we come very close to the conclusion that there are significant differences between the two groups.

3.2.5. Strategy

Proposition 5a: Managing directors of companies pursuing some type of growth strategy consider non-financial performance measures relating to the achievement of the strategy more important than do managing directors of other companies.

Proposition 5b: Managing directors of companies pursuing consolidation or retrenchment strategies consider financial performance measures to be more important than do managing directors of other companies.

Both hypotheses rest on the proposition that differences in corporate strategies should logically lead to differences in planning and control systems design. According to the research of Govindarajan and Gupta (Emmanuel et al. 1990), when greater reliance is placed on long-run criteria of evaluation, effectiveness is enhanced through 'build' strategies but diminished through 'harvest' strategies. Therefore, the assumption behind proposition 5a is that companies with growth strategies focus primarily on the achievement of strategic objectives while in companies suffering a latent or acute crisis most attention must be paid to short-term financial goals (such as liquidity), thereby neglecting non-financial areas.

Table 6. Independent-Samples Tests

Proposition 5a (I-Samples Test)		F	Sig.	t	df	Sig. 2-tailed
Levene's Test for Equality of Variances	Equal var. assumed	1.018	.315			
	Equal var. not assume.					
t-test for Equality of Means	Equal var. assumed			3.385	147	.001
	Equal var. not assume.			3.966	38.616	.000
Proposition 5b (I-Samples Test)		F	Sig.	t	df	Sig. 2-tailed
Levene's Test for Equality of Variances	Equal var. assumed	.077	.781			
	Equal var. not assum.					
t-test for Equality of Means	Equal var. assumed			.962	147	.338
	Equal var. not assum.			1.058	35.727	.297

Of all the companies in the sample, 125 pursue some type of growth strategy (group 1), whereas others follow either a stabilisation (21) or retrenchment

strategy (3) these latter making up group 2 (for independent variable CO_STRAT see Table 2 in the Appendix). The null hypothesis for proposition 5a assumes equal means for selected strategic performance measures (see dependent variable STRA_PER in Table 3 in the Appendix). The Independent-Samples T-Test procedure was used and the results in Table 6 imply that there are statistically significant differences among groups ($\alpha=0.0005$). Similarly, the null hypothesis for proposition 5b assumes equal means for selected financial performance measures (see the dependent variable FIN_PER in Table 3 in the Appendix). Again, the Independent-Samples T-Test procedure was used. Here, the results in Table 6 indicate that the null hypothesis cannot be rejected ($\alpha=0.169$) implying that there are no significant differences in importance assigned to financial performance measures reflecting short-term goals among managing directors of different companies.

3.2.6. Certificates of quality

Proposition 6: Managing directors of companies that either have acquired or are in the process of acquiring the ISO 9000 certificate consider non-financial quality-related performance measures more important than do managing directors of other companies.

Table 7. Independent-Samples Tests

Proposition 6 (I-Samples Test)		F	Sig.	t	df	Sig. 2-tailed
Levene's Test for Equality of Variances	Equal var. assumed	1.904	.170			
	Equal var. not assum.					
t-test for Equality of Means	Equal var. assumed			.651	123	.517
	Equal var. not assum.			.875	62.399	.385

Proponents of TQM maintain that there is a universal set of practices that, if implemented, will lead to high performance. As an official quality award honours the company for following these practices, it is hypothesised that the presence of the ISO 9000 certificate stipulates the managing director to consider quality related performance measures as more important. Companies were accordingly divided into two groups (see independent variable ISO9_1 in Table 2 in the Appendix): the first group consists of those companies with ISO 9000 certificate and those that are in the process of acquiring one (100); other

companies (25) comprise the second group. The dependent variable (QUAL_PER) is related to a series of performance measures of TQM. The null hypothesis assumes no differences in the dependent variable means between the two groups and was tested using the Independent-Samples T-Test procedure. Calculated t does not exceed the critical tabled value for 1-tailed test (see Table 7) and the null hypothesis cannot be rejected ($\alpha=0.258$).

4. Discussion

Empirical evidence based on a sample of 150 large Slovenian companies shows that there are differences in performance measurement system designs that can be interpreted in the light of some contingent factors. The research results imply that from six assumed performance measurement contingencies, we can isolate three: the power of trade unions, technology, and the corporate strategy.

First, the power of trade unions forces managing directors to pay more attention to performance measures of employee satisfaction. While trade unions represent a powerful stakeholder group in Slovenia that gives priority to maximising economic rents for their members (resulting in wage growth), union organisations are also powerful in that they have bargaining power in determining performance criteria and strategic objectives. In some industries, the power of unions is stronger than in others and according to our results this has important implications for performance measurement – in such circumstances, managing directors should consider employees' interests and pay attention to measures of employee satisfaction, development and compensation.

Second, the results of our research show that the impact of a company's technology on the environment affects the directors' consideration of performance measures of environmental impacts and corporate reputation. Although environmental responsibility has only gradually been developed in Slovenia, managing directors from companies whose production has impacts on natural environment obviously believe that fostering positive connections to environmental stakeholders can help a firm's profitability. Or, as De Burgos Jimenez and Cespedes Lorente (2001) claim, there are both similarities and synergies between environmental protection activities and programmes and the operation's methods and techniques. Consequently, directors of companies with considerable impacts on natural environment should be responsible to the community and the environment and monitor measures that reflect environmental impacts.

Finally, growth strategies appear to be related to a greater consideration of non-financial performance measures that are associated with the achievement of those strategies. In addition, companies suffering a latent or acute crisis were expected to pay more attention to short-term financial goals (such as liquidity).

This hypothesis, however, was not confirmed in our analysis. In Slovenia, financial soundness (comprising liquidity and solvency, in particular) has been one of the biggest concerns ever since the country became independent in 1991. The period following shortly after 1991 was marked by enormous falls in sales due to the loss of markets in ex-Yugoslavia, coupled with the problems of accounts receivable that had to be written off. In fact, financial crisis spilled over from one company to another. Empirical evidence from our research indicates that while in companies with growth strategies non-financial measures related to the achievement of strategic objectives are crucial to successful strategy execution, attention to financial soundness is still needed.

On the other hand, however, the competitiveness of the product markets, size of the company and quality certificates cannot be empirically determined as performance measurement contingencies. Managing directors of companies operating in less competitive environments are as aware of the benefits of relying on both financial and non-financial performance measures as are managing directors in competitive business environments. Also, in companies with employee representatives, similar attention is paid to performance measures concerning employee satisfaction as is in companies without employee representatives. Finally, in companies without quality certificates (and with no intentions to acquire one), TQM performance measures appear to be as important as in companies with some quality certificate. This last finding can be explained by the total quality management paradigm that has been very well accepted in Slovenia. Since 1989, when the first quality certificate based on the ISO 9000 was granted, the number of ISO 9000 and ISO 14001 certificates has been increasing every year. Today, there are over 1500 certified companies operating in Slovenia. In addition, the Slovenian Business Excellence Award based on the European Quality Award was established in 1998 to provide further encouragement to Slovenian companies to compete in business excellence.

Results must also be looked at from a more aggregate perspective. In developed market economies, traditional performance measurement is either being modernised or altogether replaced by up-to-date approaches. Measurement initiatives appear to be dynamic in large Slovenian companies, too. Although competitive environments and changed internal conditions are not present in all cases, managing directors seem to be aware of the obsolescence of traditional performance measurement systems and of strengths of contemporary measures. On the other hand, however, we may be facing a new measurement 'crisis', with organisations implementing new measures to reflect new priorities but failing to discard measures reflecting old priorities, resulting in uncorrelated and inconsistent measures (Meyer/ Gupta 1994).

5. Implications for future research

A contingency theory of performance measurement certainly has a great deal of appeal. It is in accord with practical wisdom and appears to afford a potential explanation for the bewildering variety of performance measurement systems observed in practice. However, we are aware of the danger that failure to manage effectively the way in which measurement systems change over time will cause new measurement systems to lose their relevance, prompting a new crisis. Therefore, we need to address some other questions regarding the evolution of performance measurement systems. One of the first is the question of what other factors may be analysed as potential contingencies of performance measurement. It is suggested that the contingency theory of management accounting provides a suitable theoretical starting point, but other variables may also prove to be central contingent variables. In addition to organisational culture, legal form of the company, legislation (public policy), customers, and nature of work (e.g. outsourcing) - to name just a few - should also be considered. The nature of appropriate contingent variables, however, has to be elucidated and this requires greater theoretical, as well as empirical, attention. Differences in performance measurement may also stem from the fact that some managers conduct the affairs of their company so as to achieve only a satisfactory and not the maximum level of the objectives (Cyert/March, 1963). Or, as the theory of bounded rationality argues, human beings differ in their abilities to process and understand large quantities of information. From this perspective, the question of barriers to and facilitators of evolution needs to be considered. Based on case studies, Kennerley/Neely (2002) provide some preliminary understanding of the factors, both internal and external to the organisation, that facilitate and inhibit the introduction of new measures, the modification of existing measures and deletion of obsolete measures. Further research is also needed in this direction.

Lastly, explicit consideration of organisational effectiveness is a vital part of a true contingency theory. The question of actual contingencies cannot be adequately answered as long as potential contingent factors are studied in isolation, i.e. without addressing the relationship between the contingencies and corporate financial performance. It is the effectiveness of performance measurement, in terms of how it contributes to increased corporate financial performance, that has been growing in importance during the last two decades. This has been neglected so far, but will be considered as we proceed with further research.

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Appendix

Table 1. Average Importance Grade of 45 Performance Measures

	N	Mean	Std. Deviation
	Statistic	Statistic	Std. Error
1 Customer satisfaction	105	4.733	0.047
2 Product (service) quality	105	4.648	0.066
3 Reputation for quality of products and services	105	4.571	0.073
4 Meeting customer related objectives	105	4.419	0.083
5 Achieving Strategic objectives	105	4.381	0.078
6 Liquidity	105	4.362	0.079
7 Solvency	105	4.324	0.076
8 Total quality management indicators	105	4.286	0.081
9 Achieving the corporate vision	105	4.276	0.090
10 Reputation for financial soundness	105	4.267	0.074
11 Optimisation of internal processes	105	4.257	0.080
12 Employee satisfaction	105	4.248	0.076
13 Sales growth rate	105	4.238	0.077
14 Learning process of employees	105	4.238	0.076
15 Introduction of new products / services	105	4.238	0.080
16 Value added	105	4.229	0.081
17 Employee relations	105	4.229	0.064
18 Reputation for ability to attract, develop and keep talented people	105	4.229	0.081
19 Profit growth rate	105	4.229	0.079
20 Efficiency	105	4.181	0.089
21 Value added per employee	105	4.133	0.086
22 ROE	105	4.114	0.082
23 Performance in relation to competitors	105	4.086	0.099
24 ROI	105	4.076	0.083
25 Financial performance related targets	105	4.057	0.081
26 Environmental responsibility	105	4.057	0.081
27 Profit margin for products sold	105	4.019	0.088
28 Reputation for long-term growth of firm's value	105	3.876	0.096
29 Orders received	105	3.829	0.097
30 ROA	105	3.819	0.084
31 Profit margin for goods sold	105	3.810	0.116
32 Creating value for shareholders	105	3.800	0.099
33 Reputation for innovation	105	3.790	0.103
34 Shareholders' satisfaction	105	3.781	0.099
35 Reputation for quality of management	105	3.686	0.092
36 Community relations	104	3.663	0.092
37 Debt to equity ratio	105	3.648	0.092
38 Environmental and social responsibility	105	3.638	0.095
39 Sales / Assets	105	3.610	0.088
40 Sales per employee	105	3.562	0.100
41 R & D to Sales	105	3.371	0.090
42 Earnings per share	105	3.305	0.125
43 Social responsibility	105	3.257	0.096
44 Market-to-book value	105	2.838	0.100
45 Dividends to net profit ratio	105	2.714	0.103

Table 2. Independent variables

CONTINGENT FACTORS	VARIABLE	VARIABLE DESCRIPTION
Competitiveness of the product markets	COMP_MAR	Average number of competitors in the main product markets
	MAR_SHAR	Cumulative market share of the three largest competitors in the main product market
Power of unions in the industry	ORG_UNIO	'Are unions well organised in your industry?' yes/no
	POW_UNIO	'How powerful are unions in the bargaining processes concerning employees' rights, salaries, working conditions, company's strategy and performance criteria?' scale from 1 to 5
Impacts of production on the environment	ISO14	'Is the acquisition of the ISO 14001 certificate important for your company?'
Size of the company	EMPL_REP	'Does your company have an employee representative?' yes/no
	ROLE_REP	'What is the role of the employee representative?' member of Board of Directors: yes/no
Corporate strategy	CO_STRAT	'What corporate strategy does your company pursue?' growth/stabilisation/retrenchment
ISO 9000	ISO9_1	'Has your company acquired or is in the process of acquiring the ISO 9000 certificate?' yes/no

Table 3. Dependent variables

PERFORMANCE MEASURES	VARIABLE	DESCRIPTION OF THE VARIABLE
Traditional performance measurement	TRAD_PER	'Accounting measures such as return on capital are most important criteria of performance', meeting financial goals, sales growth, earnings growth, return on sales, return on capital, return on assets, revenues to expenses ratio, debt to equity ratio
Performance measures on employee satisfaction	EMPL_PER	Employee satisfaction, employee relations, reputation to attract, develop and keep talented people, meeting objectives related to organisational learning and growth
Performance measures on environmental impacts	ENVI_PER	Reputation for responsibility to the community and the environment, reputation for quality of management, social responsibility, care for environment, public relations
Performance measures	STRA_PER	'Business results are judged from the

on strategy and vision		perspective of how is the corporate strategy being achieved', achieving strategic objectives, achieving the corporate vision
Financial performance measures	FIN_PER	'Financial performance measures are the most important criteria of performance', meeting financial goals, solvency, liquidity, revenues to expenses ratio
Performance measures on quality	QUAL_PER	Total quality management, optimisation of internal processes, product/service quality, reputation for product/service quality

Dependent variables are calculated as the average of means of a set of indicators of performance measures and/or statements that have been chosen as determining a specified dependent variable (see description of the variable).