

The Relationship between Organisational Life Cycle and the Use of Multiple Performance Measures: A Configuration Approach

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Abstract

Research aim: This study investigates the relationship between organisational life cycle (OLC) stages and the use of multiple performance measures (MPMs) across Indonesian manufacturers. A configuration approach was used to categorise companies into different OLC stages using Miller and Friesen's (1984) typology.

Design/ Methodology/ Approach: A survey method was utilised, with the respondents comprising 96 managers of Indonesian manufacturing companies. A cluster analysis with hierarchical agglomeration and Ward's minimum variance method was used to classify companies into OLC stages. Analysis of variance (ANOVA) and pairwise comparison analysis were used to examine the hypotheses.

Research finding: Significant differences in the usage of each and all MPM perspectives was observable across OLC stages. A greater extent of the use of each and all MPM perspectives was also demonstrated by companies in the growth stage, compared to those in the maturity and birth OLC stages. A greater extent of the use of the customer perspective and all MPM perspectives was documented by companies in the revival stage. The learning and growth perspective was implemented to a marginally greater extent by revival-stage companies than birth- and maturity-stage companies.

Theoretical contribution/Originality: This study contributes to contingency-based OLC and performance measurement systems (PMSs) literature by documenting an association between OLC stages and the use of MPM perspectives across Indonesian manufacturers.

Practitioner/Policy implication: Results of this study can enhance managers' understanding about the implication of OLC stages in influencing companies' performance measurement practices. This allows managers to make strategic decisions that are consistent with the objectives and priorities of their company's performance measures and respective OLC stage.

Research limitation: The present study is related to the classification of companies into OLC stages. Future studies can use different OLC classification approaches and/or different typologies. This study is also limited to companies from the manufacturing sector and the number of respondents, which may limit generalisation.

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1. Introduction

Current developments in performance measurement practices have highlighted the importance of an integration between financial and non-financial measures within an organisation's performance measurement systems (PMSs) (Guenther & Heinicke, 2019; Tawse & Tabesh, 2023). This is based on a premise that both financial and non-financial measures are essential, as these can strategically reflect an organisation's competitive stance and capabilities (Dossi & Patelli, 2010). Prior studies document the benefits to an organisation from adopting multiple performance measures (MPMs), which consists of a combination of financial and non-financial factors. Some of these benefits include allowing organisation to translate strategy into operational terms (Banker, Chang & Pizzini, 2004; Van der Stede, Chow & Lin, 2006), and enabling managers to have a clear understanding of factors that can drive favourable outcomes (Gong & Ferreira, 2014). One example of an MPM is the Balanced Scorecard (BSC) outlined by Kaplan and Norton (1996, 2001) which incorporates three non-financial perspectives, i.e., customer, internal business processes, and learning and growth, to complement the financial perspective.

While the adoption of MPMs is increasingly considered essential for organisations, several studies argue that the adoption of contemporary PMSs are possibly contingent upon the specific life cycle stage of an organisation (Moores & Yuen, 2001; Auzair & Langfield-Smith, 2005; Davila, 2005; Kallunki & Silvola, 2008; Silvola, 2008; Su, Baird & Schoch, 2015, 2017). Miller and Friesen (1984) outline the concept of organisational life cycle (OLC) stages, which categorises firms into five different stages: birth, growth, maturity, revival, and decline,¹ based on the four contingent characteristics of situation, strategy, structure, and decision-making style. In the birth stage, companies are generally small in terms of size, have a simple organisational structure and decision-making process, and tend to operate in a relatively uncompetitive environment (Miller & Friesen, 1984; Milliman, Von Glinow & Nathan, 1991). In the growth stage, companies are typically larger, have a more complex structure based on functionality, and begin to adopt formal procedures. Firms in this stage typically have established initial market success and sales growth (Auzair & Langfield-Smith, 2005; Su et al., 2015). In the maturity stage, organisational size generally increases, and stability and efficiency become the focus. In this stage, formal controls are typically used extensively to ensure efficiency and predictability (Miller & Friesen, 1984; Davila, 2005). In the revival stage, companies tend to aim for diversification

and innovation of products to deal with a heterogeneous environment. Divisional structure is adopted to enable more integrated, analytical, and participative decision-making process (Miller & Friesen, 1984; Milliman et al., 1991). Finally, in the decline stage, companies becoming stagnant, abstaining from innovations, and underperform in the market (Miller & Friesen, 1984; Su et al., 2015).

Notwithstanding its potential benefits, the adoption of MPMs across organisations are not without challenges (Ittner, Larcker & Randall, 2003; Dossi & Patelli, 2010; Ho, Wu & Wu, 2014), yet the barriers for successful adoption of such measures can be potentially explained through the viewpoint of OLC stages (Moores & Yuen, 2001). In this sense, previous OLC studies document that the priorities of managers, including deciding which factors to be included within PMSs, tend to vary depending on the respective OLC stage of their organisations (Quinn & Cameron, 1983; Smith, Mitchell & Summer, 1985; Kallunki & Silvola, 2008). This is due to different characteristics associated with each OLC stage, which in turn determine the criteria of organisational effectiveness and approach taken in measuring performance and making decisions (Quinn & Cameron, 1983; Moores & Yuen, 2001; Davila, 2005). Meanwhile, despite its conceptual relevance towards organisational practice, prior studies also argue that the OLC stages perspective has been largely unrepresented in empirical management accounting research (Granlund & Taipaleenmaki, 2005, p. 25; Auzair, 2015, p.53; Su et al., 2015).

The present study therefore attempts to address this concern by examining the relationship between OLC stages and the use of MPMs across Indonesian manufacturers. This study uses contingency theory (Otley, 1980; Chenhall, 2003) as a theoretical basis to empirically investigate whether MPM adoption across organisations are contingent upon their respective OLC stages, and if these are applied using a configuration approach (Gerdin & Greve, 2004), in line with prior OLC studies (e.g., Moores & Yuen, 2001; Kallunki & Silvola, 2008; Phan, Baird & Blair, 2014). By examining the potential association between OLC stages and MPM practices, this study aims to make contributions toward contingency-based OLC and PMS literature. Prior OLC studies examine the relation between OLC stages and the use of PMSs or management control systems (MCSs), including management accounting techniques attributes and formality (Moores & Yuen, 2001; Silvola, 2008), activity-based costing and management (Phan et al., 2014), MCSs and techniques (Silvola, 2008; Auzair, 2015; Su et al., 2015), and strategic management accounting (Pasch, 2019). Nevertheless, there are still limited studies that specifically investigate the relationship between OLC stages and the use of MPMs that combine both financial and non-financial aspects. The present study therefore attempts to fill this gap and contribute toward the enrichment of contingency-based OLC and PMS literature.

Since OLC stages are classified based on different contingency characteristics (Miller & Friesen, 1984; Su et al., 2015), it is crucial to investigate the potential linkage between an organisation's contingent characteristics, which are reflected by the OLC stage, and its PMSs practices. Furthermore, studies examining the use of MPMs in emerging economies are still limited (Hoque, 2014). Accordingly, the present study aims to examine the relationship between different OLC stages and MPM usage across Indonesian manufacturers and therefore contribute to PMS literature in emerging countries. The findings of this study are expected to offer practical contributions to managers looking to enhance their understanding of the linkage between company performance measurement practices and OLC stages. This understanding would allow managers to make strategic decisions that are in line with the objectives and priorities of their PMSs and the OLC stage in which their organisations are currently operating.

This paper is organised as follows. Section 2 provides literature review while section 3 discusses research method. Section 4 offers the results of analysis and section 5 shows discussion and conclusion.

2. Literature Review

2.1 Multiple performance measures (MPMs)

The competitive business landscape has led companies to consider more comprehensive ways to measure performance. In particular, the necessity to capture and understand multiple factors that eventually lead towards favourable financial performance has become an essential agenda for business practitioners (Ittner & Larcker, 1998; Hoque, 2014; Tawse & Tabesh, 2023). It is important to consider and understand the effect of multiple non-financial factors, such as customer satisfaction, internal operations and learning, and technology capability, as these are expected to affect financial performance (De Geuser, Mooraj & Oyon, 2009; Asiaei & Jusoh, 2017).

The BSC is an example of PMS that considers both financial and non-financial perspectives, in which the financial perspective is complemented by leading non-financial factors, i.e., customer, internal business processes, and learning and growth (Kaplan & Norton, 1996, 2001). The customer perspective reflects how well the company is performing from the viewpoint of its customers, and whether they are satisfied with company's products and services (Huang, Chu & Wang, 2007). The internal business processes perspective shows whether the company has successfully achieved internal operational excellence that can lead to favourable outcomes (Jusoh, Ibrahim & Zainuddin, 2008). The learning and growth perspective implies that the firm can leverage on existing and future competences, such as its information systems and technology capabilities, as well as employee performance (Huang et al., 2007).

2.2 *Organisational life cycle (OLC) stages*

Miller and Friesen (1984) postulate the concept of OLC stages, which as explained above, divide companies into the life cycle stages of birth, growth, maturity, revival, and decline, based on the four contingent characteristics of situation, strategy, structure, and decision-making style. Miller and Friesen's (1984) typology is selected here due to the prevalence of its application in prior empirical OLC-related studies (Moores & Yuen, 2001; Kallunki & Silvola, 2008; Silvola, 2008; Phan et al., 2014; Su et al., 2015, 2017). Birth-stage companies are typically small in terms of size. Decision-making is based more on intuition without further analysis, and tends to be based on a single or a few factors. Companies in this stage also place less reliance on the use of information systems for planning and operations. In the growth stage, companies generally compete in a more heterogeneous market. Decision-making includes more data analysis and consideration of multiple factors. A more complex structure based on functionality is adopted and innovation is encouraged and practised.

In the maturity stage, companies are larger in term of size and operate in a relatively less turbulent environment. Decision-making is channelled towards attaining stability rather than growth, and a relatively narrow product scope is offered. Revival-stage companies are typically largest in terms of size and operate in environments that are highly dynamic and hostile. Diversification and integration become important agendas for companies in this stage. Decision-making is characterised by participative, proactive, and risk-taking initiatives. Lastly, companies in the decline stage are indicated by a low degree of innovation and risk-taking. Company resources are depleted because of poor performance and suboptimal decisions.

2.3 *The use of MPMs across OLC stages*

Previous studies report several benefits that can be derived by an organisation from adopting MPMs, which combines both financial and non-financial factors. Examples of these benefits include an organisation being able to translate its strategy into actionable terms (Banker et al., 2004; Van der Stede et al., 2006), and managers being provided with a clear picture on the existence of non-financial factors that could drive favourable financial results (Gong & Ferreira, 2014). However, despite these likely benefits, several studies note the challenges that exist in MPM implementation processes (Ittner et al., 2003; Dossi & Patelli, 2010; Ho et al., 2014).

Based on the premise of contingency theory (Otley, 1980; Chenhall, 2003), which points to a potential association between contingency factors and PMS practices, it can be argued that that the barriers that hinder the

successful adoption of MPMs would be potentially explainable through an OLC stage perspective (Moores & Yuen, 2001). This is because the priorities of organisational decision-makers tend to differ based on the OLC stage of their respective organisations (Quinn & Cameron, 1983; Smith et al., 1985). Different characteristics are associated with each OLC stage, which subsequently affects the criteria of organisational effectiveness, performance measurement, and decision-making preferences (Quinn & Cameron, 1983; Moores & Yuen, 2001; Davila, 2005). For instance, managers in companies operating in one OLC stage may have different preferences than those in another OLC stage regarding aspects to be included within organisational PMSs, i.e., the inclusion of several non-financial measures to complement existing financial measures. This is arguably due to the differences in the contingency characteristics of situation, strategy, structure, and decision-making style associated with different OLC stages (Miller & Friesen, 1984; Phan et al., 2014).

Companies in the birth stage tend to place less reliance on the use of sophisticated information and action planning systems due to their small size and availability of resources. A less participative management style is also anticipated in which the owners would play dominant roles in daily operations (Miller & Friesen, 1984; Milliman et al., 1991). Expansion and ground-breaking marketing initiatives are less likely to be top agenda of companies in this stage (Su et al., 2015, 2017), as innovation and risk-taking initiatives are still at the inception stage. As such, it is predicted that the use of each and all perspectives of MPMs may not be prevalent among companies in this stage.

Companies in the growth stage tend to innovate and take more risks to grow the business and expand the market share. Decision-making practices begin to involve multiple factors embedded with strategic vision and adaptiveness (Miller & Friesen, 1984). A more formal structure is adopted and the owners play a less dominant role than in the birth stage. Customers are prioritised more in this stage, given the aim of building loyalty among existing customers and attracting new ones (Auzair & Langfield-Smith, 2005; Kallunki & Silvola, 2008). Thus, the use of each and all MPM perspectives would be plausibly beneficial for companies in this stage, and it is expected that these companies will be using MPM perspectives to a greater extent.

Companies in the maturity stage tend to focus on attaining stability and predictability of operating activities. Product scope is narrowed to maintain focus and reduce complexity of operations (Miller & Friesen, 1984). Companies in this stage typically place less focus on customers' needs and preferences when formulating strategy and making operating decisions (Moores & Yuen, 2001). As such, it is predicted that the use of each and all MPM perspectives by companies in this stage will not be extensive. Companies in the revival stage, meanwhile, undertake expansion

and integration to the highest extent. Diversification also becomes a focus of companies in this stage (Miller & Friesen, 1984; Su et al., 2015, 2017). Decision-making is based on participative management and proactiveness. Risk-taking culture is prevalent, but it is well supported with the use of sophisticated information systems and action planning (Phan et al., 2014). Environmental dynamism and hostility are perceived to be of the highest extent. It is predicted that companies in this stage will use each and all MPM perspectives to a greater extent, as they will be useful in assisting expansion and diversification objectives.

Based on those explanations, this study predicts that the use of each MPM perspective, i.e., financial, customer, internal business processes, and learning and growth, and all MPM perspectives together, will be more observable across companies in the growth and revival OLC stages, compared to the birth and maturity stages. This is because the use of each and all MPMs perspectives can assist growth- and revival-stage companies to attain their strategic objectives that are related to growth, risk-taking, innovation, expansion, and diversification in a dynamic and hostile environment which bears challenges and turbulences but also opportunities (Bisbe & Malagueno, 2012). In contrast, it is expected that companies in the birth and maturity stages would use each and all MPMs perspectives to a lesser extent due to fewer risk-taking initiatives and a lower focus on innovation and expansion (Miller & Friesen, 1984; Su et al., 2015).

Based on the above, the following hypotheses that highlight the associations between MPMs and OLC stages are proposed:

- H_{1a} The use of financial perspective of MPMs will be more prevalent among companies in the growth than in the birth and maturity OLC stages
- H_{1b} The use of financial perspective of MPMs will be more prevalent among companies in the revival than in the birth and maturity OLC stages
- H_{2a} The use of customer perspective of MPMs will be more observable across companies in the growth than in the birth and maturity OLC stages
- H_{2b} The use of customer perspective of MPMs will be more observable across companies in the revival than in the birth and maturity OLC stages
- H_{3a} The use of internal business processes perspective of MPMs will be more noticeable among companies in the growth than in the birth and maturity OLC stages
- H_{3b} The use of internal business processes perspective of MPMs will be more noticeable among companies in the revival than in birth and maturity OLC stages
- H_{4a} The use of learning and growth perspective of MPMs will be more prevalent across companies in the growth than in the birth and maturity OLC stages
- H_{4b} The use of learning and growth perspective of MPMs will be more prevalent across companies in the revival than in the birth and maturity OLC stages
- H_{5a} The use of all perspectives of MPMs will be more widespread among companies in the growth than in the birth and maturity OLC stages

H_{5b} The use of all perspectives of MPMs will be more widespread among companies in the revival than in the birth and maturity OLC stages

It is predicted that the use of individual MPM perspectives (financial, customer, internal business processes, and learning and growth, H₁ to H₄) will be more observable across companies in the growth and revival stages than those in the birth and maturity stages. Likewise, the utilisation of all MPM perspectives is also expected to be more noticeable among companies in the growth and revival stages than those in the birth and maturity stages (H₅).

3. Methodology

3.1 Survey procedures

This study utilises survey methods to examine the relationship between OLC stages and the use of MPMs. The samples were drawn from the Manufakturindo database, which consists of a list of non-public listed Indonesian manufacturers. The manufacturing sector is selected as it provides a substantial contribution towards Indonesian GDP and employs a considerable proportion of the country's workforce (World Bank, 2021). A total of 2,097 companies appeared in Manufakturindo as of 2024 (Manufakturindo, 2024), of which 650 were randomly selected due to cost constraints. This selection procedure is similar to several MPM-related survey studies (e.g. Hall, 2008, 2011). Constraints notwithstanding, a substantial proportion of companies from the total list (30.9%) were included through this procedure.

Initial phone calls were undertaken for each of those companies to evaluate their participation availability. This resulted in 274 companies that agreed to participate. The electronic version of questionnaire was subsequently delivered to nominated respondents from each company. Three follow-up reminders consisted of a remainder call and re-delivery of questionnaire were undertaken every two weeks as suggested by survey guideline literature (Van der Stede, Young & Chen, 2007). In total, 101 initial responses were obtained, which indicates a 36.8% initial rate of response (101 of 274). Five responses were subsequently excluded due to not meeting the positional criteria of the study. This yielded 96 final and usable responses, which corresponds to a 35% final response rate. This response rate was broadly comparable with the average response rate of previous contingency-based survey studies (Bedford & Spekle, 2018).

The common-method bias examination was performed through Harman's one-factor test. Result (not tabulated) indicated the first factor appearance was 25.02% which still <50% of the overall variance. This

exemplified an absence of a significant one-source bias (Podsakoff & Organ, 1986; Podsakoff, MacKenzie, Lee & Podsakoff, 2003). The likelihood of non-response bias was evaluated by comparison of means of variables of interests between early and late respondents across two analyses. In the first analysis, early and late respondents referred respectively to the first and last 25% of survey responses (each $n=24$) while in the second analysis the early and late respondents are those who filled the questionnaire before any follow-ups ($n=33$) and after the third follow-up ($n=16$), respectively. Result of the first analysis (not tabulated) pointed out insignificant differences of the variables of interests between the two groups (all $p>0.1$) while result of the second analysis (not tabulated) reveals insignificant difference for MPMs ($p>0.1$) and a marginally significant difference for OLC stages ($p=0.07$) across two groups where the mean scores for OLC stages for respondents without any follow-ups were lower to a marginally significant extent than those who filled the questionnaire after third follow-ups. While this outcome may affect subsequent analysis to a certain extent (c.f. Wahlberg & Poom, 2015), several procedures that have been undertaken to ensure validity and reliability of survey instruments and data analysis and interpretation would arguably have mitigated this limitation and thus preserve the usefulness and generalisability of results of this study (Podsakoff & Organ, 1986; Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

3.2 Survey items

To preserve validity and reliability, the variables examined in this study were measured through well-established questionnaire instruments. Content validity and relevance prior to the delivery of questionnaires was assessed via pilot tests undertaken with four accounting academics and four business practitioners that are not included in the main survey. Any corrections and suggestions arising from the pilot tests were used to refine the questionnaires prior to distribution.

3.2.1 OLC stages

The OLC stages were measured by a set of instruments used in Miller and Friesen (1984), which consists of 54 items. Further identification was undertaken to assess the contextual relevance and appropriateness of those items, with several OLC-related studies and Miller and Friesen (1984) instruments used as references (e.g. Moores & Yuen, 2001; Su et al., 2015, 2017). This process led to the selection of 35 items that reflect four contingent characteristics (strategy, situations, structure, and decision-making style) to be used as the basis for OLC stage classification. The reduction of several items in the present study is in line with the procedures undertaken in

several prior OLC-related studies (Moores & Yuen, 2001; Su et al., 2015, 2017), aimed at ensuring the clarity and relevance of items to be used in the classification of OLC stages. From the 35 items, six items are for measuring situations, seven items are for structure, 13 items are used to measure strategy, and nine items are for measuring decision-making style (see Appendix for full list of items). Respondents were asked to indicate the extent to which the statements regarding each contingent characteristic of OLC stages are reflected in their organisation's work environment, where the responses are ranged from 1 (not at all) to 7 (to a great extent).

3.2.2 The use of MPMs

The use of MPMs was measured by a set of questions adapted from Henri (2006). These questions highlighted multiple performance indicators that are in line with financial and non-financial perspectives of the BSC. Of the 20 questions, six items are for measuring performance from the financial perspective, six items to measure the customer perspective, four items to measure internal business processes, and four items to measure learning and growth perspectives. Respondents were required to rate the extent of use of these multiple performance indicators in their organisations, with responses ranging from 1 (not at all) to 7 (to a very great extent). A higher score reflects a higher extent of use of that performance measure and vice versa.

4. Results

4.1 Classification of companies into OLC stages

Table 1 and 2 show the profiles of respondents and companies respectively. The classification of companies into OLC stages were undertaken via procedures that are in line with prior OLC studies (Moores & Yuen, 2001; Su et al., 2015, 2017). The procedures consist of two steps. In step one, the factor analysis was conducted to produce nine factors derived from four contingent characteristics of OLC stages (situations, structure, strategy, and decision-making style). The nine factors will be used in the cluster analysis in step two to classify companies into their respective OLC stages.

Table 1: Respondent Profiles

Description	Freq.	%	Description	Freq.	%
A. Job position			B. Years in job position		
Accounting/ finance/ budgeting manager	31	32.2	0-2 years	25	26.1
Human resource manager	24	25.0	3-5 years	22	22.9
Head of division	11	11.5	6-10 years	22	22.9
General manager	6	6.3	11-15 years	10	10.4
Sales/marketing manager	6	6.3	> 15 years	17	17.7
Cost/financial controller	4	4.2	<i>Total</i>	96	100.0
Senior manager	4	4.2	C. Years in company		
Director/Vice director	3	3.1	0-2 years	20	20.8
Area/Branch manager	1	1.0	3-5 years	25	26.1
Owner	1	1.0	6-10 years	15	15.6
Quality assurance manager	1	1.0	11-15 years	12	12.5
Other	4	4.2	> 15 years	24	25.0
<i>Total</i>	96	100.0	<i>Total</i>	96	100.0

Table 2: Company Profiles

Description	Freq.	%	Description	Freq.	%
A. Sectors of industry			B. Company age		
Consumer goods	11	11.5	6-10 years	3	3.1
Industrial parts	11	11.5	11-20 years	22	22.9
Buildings materials	10	10.4	21-30 years	32	33.3
Machinery	10	10.4	31-50 years	21	21.9
Chemical products	8	8.3	>50 years	18	18.8
Agriculture products	6	6.3	<i>Total</i>	96	100.0
Pharmaceuticals	6	6.3	C. Number of employees		
Plastics	6	6.3	1-50	12	12.5
Textiles	5	5.2	51-100	18	18.8
Vehicle parts	5	5.2	101-500	37	38.5
Packaging	4	4.1	501-1,000	13	13.6
Electrical products	3	3.1	1,001-3,000	10	10.4
Furniture products	2	2.1	3,001-5,000	3	3.1
Office products	2	2.1	5,001-10,000	2	2.1
IT parts	2	2.1	>10,000	1	1.0
Steel parts	2	2.1	<i>Total</i>	96	100.0
Household products	1	1.0			
Rubber products	1	1.0			
Other	1	1.0			
<i>Total</i>	96	100.0			

Table 3 shows the results of factor analysis with Promax rotation, where the 35 items are loaded into nine different factors. Factor 1 consists of eight questions (one from structure and seven from decision-making style), and was labelled as ‘Comprehensive, multi-factors consideration, integrated, strategic and adaptive decision-making’. Factor 2 includes seven questions (six from strategy and one from situation), which was labelled ‘Dynamic expansion, advertising, segmentation, pricing and marketing initiatives’. Factor 3 contains four questions (all from strategy) and was labelled ‘Diversification and integration’. Factor 4 consists of four questions (all from structure), and was labelled ‘Sophisticated information systems, action planning, environmental scanning and delegation’. Factor 5 includes four questions (one from strategy, two from situation and one from structure), and was labelled ‘Influences of competitor, directors, and owners on decisions and operations and centralised strategy formulation’. Factor 6 consists of two questions (all from strategy), and was labelled ‘Product innovation’. Factor 7 contains of three questions (one from structure and two from decision-making style), and was labelled ‘Participative management, proactiveness and risk-taking propensity’. Factor 8 consists of only one question (from situation), and was labelled ‘Influence of customers on decisions and operations’. Factor 9 contains two questions (both from situation), and was labelled ‘Environmental dynamism and hostility’.

Table 3: Factor Analysis of OLC Items

Items*	Factors								
	1	2	3	4	5	6	7	8	9
1	0.462	0.350	0.226	0.155	0.202	0.722	0.395	0.186	0.034
2	0.235	0.267	0.084	0.300	0.149	0.764	0.240	0.266	0.034
3	0.516	0.216	0.185	0.283	0.612	0.262	0.294	0.445	-0.107
4	0.084	0.152	0.812	-0.014	0.224	0.236	0.151	0.095	0.032
5	-0.012	0.389	0.674	-0.084	0.128	-0.048	0.386	-0.149	0.163
6	-0.085	0.600	0.440	0.078	0.042	0.017	-0.123	-0.003	0.241
7	0.185	0.387	0.689	0.116	-0.023	0.188	0.183	0.209	-0.140
8	-0.100	0.356	0.797	0.049	-0.105	0.123	0.124	0.105	0.150
9	0.021	0.719	0.357	0.060	0.131	0.138	0.251	0.116	0.023
10	-0.021	0.648	0.238	0.063	0.082	0.439	0.216	0.140	0.102
11	0.079	0.640	0.070	0.273	0.081	0.328	0.246	-0.012	-0.179
12	-0.035	0.667	-0.083	-0.140	0.110	0.257	0.331	-0.246	0.188
13	-0.047	0.806	0.211	0.101	0.169	0.076	0.337	0.156	0.084
14	0.056	0.132	0.009	0.109	0.734	0.397	0.225	0.178	-0.175
15	0.195	0.127	-0.119	0.057	0.778	0.123	0.003	-0.026	0.152

Items*	Factors								
	1	2	3	4	5	6	7	8	9
16	0.340	0.054	0.010	0.255	-0.013	0.203	0.159	<i>0.810</i>	0.034
17	0.277	0.131	0.116	0.104	0.030	0.373	0.214	0.289	<i>0.605</i>
18	-0.318	0.497	0.177	0.050	0.045	-0.037	-0.047	-0.069	<i>0.555</i>
19	0.092	<i>0.610</i>	0.182	0.066	0.031	0.481	0.372	0.437	-0.011
20	0.439	0.126	-0.093	0.471	-0.256	0.121	<i>0.594</i>	0.229	-0.207
21	0.537	0.188	0.029	<i>0.759</i>	0.225	0.475	0.227	0.272	-0.071
22	0.472	0.108	0.098	<i>0.819</i>	0.190	0.351	0.287	0.336	-0.121
23	0.547	0.180	-0.165	<i>0.781</i>	0.345	0.195	0.396	0.367	-0.135
24	<i>0.720</i>	-0.040	0.010	0.542	0.076	0.224	0.252	0.336	-0.124
25	0.100	0.036	0.132	0.154	<i>0.725</i>	-0.077	-0.027	-0.123	-0.069
26	0.389	0.243	0.000	<i>0.638</i>	-0.015	0.238	0.503	0.610	-0.480
27	0.357	0.530	0.138	0.278	0.179	0.605	<i>0.786</i>	0.445	-0.223
28	0.088	0.305	0.222	0.118	0.076	0.224	<i>0.814</i>	0.145	-0.019
29	<i>0.832</i>	0.127	-0.074	0.425	0.211	0.273	0.283	0.265	0.006
30	<i>0.811</i>	-0.001	-0.177	0.512	0.112	0.192	0.276	0.319	-0.032
31	<i>0.834</i>	0.001	-0.046	0.467	0.043	0.222	0.388	0.410	-0.219
32	<i>0.839</i>	-0.090	0.024	0.348	0.082	0.293	0.146	0.351	-0.270
33	<i>0.772</i>	-0.150	0.026	0.212	0.038	0.499	0.261	0.365	-0.446
34	<i>0.662</i>	0.285	0.011	0.286	0.437	0.648	0.564	0.497	-0.291
35	<i>0.738</i>	-0.087	0.090	0.066	0.342	0.262	0.075	0.274	-0.105

Note: * List of questions included in Appendix; items loaded into each factor displayed in italics

The nine factors were subsequently categorised into four OLC contingent characteristics based on most frequently appearing contingent characteristics in each factor. Factors 5, 8, and 9 are categorised into situation, and factor 4 is categorised into structure. Factors 2, 3, and 6 are classified into strategy, and factors 1 and 7 are classified into decision-making style. These categorisations are then used to perform the cluster analysis. In line with prior OLC studies (Moores & Yuen, 2001; Phan et al., 2014; Su et al., 2015, 2017), this study conducted a cluster analysis with a hierarchical agglomerative technique and Ward's minimum variance method for measuring distance between sub-groups to classify companies into four of the five clusters stipulated in Miller and Friesen (1984), namely birth, growth, maturity, and revival. The classification was based on the relative scores of companies related to four contingency factors. Table 4 shows the descriptive statistics result of companies' classification into four available clusters: 24 companies are classified in cluster 1, 27 companies in cluster 2, 19 companies in cluster 3, and 26 companies in cluster 4.

Table 4: Descriptive Statistics, Mean Values for Each OLC Factors Across Clusters

OLC factors (number of questions)	Sample mean (n = 94)	Cluster mean			
		1 (n = 24)	2 (n = 27)	3 (n = 19)	4 (n = 26)
<i>A. Situation</i>					
1. Influences of competitors, directors and owners on decisions and operations and centralised strategy formulation (4)	5.57	5.50	6.09	5.61	5.09
2. Influence of customers on decisions and operations (1)	4.72	3.79	6.52	4.26	4.31
3. Perceived environmental dynamism and hostility (2)	4.28	3.63	4.63	5.00	3.87
<i>B. Structure</i>					
1. Sophisticated information systems, action planning, environmental scanning, and delegation (4)	5.24	5.15	6.03	5.47	4.31
<i>C. Strategy</i>					
1. Dynamic expansion, advertising, segmentation, pricing, and marketing initiatives (7)	4.11	4.13	3.92	5.09	3.29
2. Diversification and integration (4)	2.68	1.73	2.25	4.86	1.89
3. Product innovation (2)	4.90	5.08	5.70	5.66	3.17
<i>D. Decision-making style</i>					
1. Comprehensive, multi-factors consideration, integrated, strategic, and adaptive decision-making (8)	5.54	5.55	6.20	5.61	4.82
2. Participative management, proactiveness and risk-taking propensity (3)	4.92	5.25	5.23	5.65	3.53
<i>E. Confirmatory variable</i>					
1. Number of employees*	3.16	3.25	3.11	3.42	2.84
<i>F. Cluster label</i>		Maturity	Growth	Revival	Birth

Note: : * Lower score indicated fewer number of employees and vice versa.

Companies in cluster 1 experienced the lowest extent of influence of customers on their decisions and operations. They also perceived environmental dynamism and hostility to the lowest extent, and have the lowest score in relation to diversification and integration. Companies in this cluster also demonstrated the second lowest score in terms of product innovation and the use of sophisticated information systems, action planning, environmental scanning, and delegation. On the other hand, they exhibit the second highest number of employees. This cluster was labelled as the maturity stage, as they arguably resemble several characteristics of maturity stage companies in the OLC (Miller & Friesen, 1984).

Companies in cluster 2 experienced the highest extent of influence from competitors, directors, owners, and customers on decisions and operations and adopt a centralised approach on strategy formulation. Companies in this cluster also exhibit the highest utilisation of sophisticated information systems, action planning, environmental scanning, and delegation. They also exhibit the highest extent of product innovation, and undertake comprehensive, multi-factor, integrated, strategic, and adaptive decision-making to the greatest extent. Nevertheless, the number of employees of these companies is the second lowest. These characteristics arguably resemble the growth-focused attribute of companies in growth stage (Miller & Friesen, 1984), thus the cluster was labelled the growth stage.

Companies in cluster 3 perceive environmental dynamism and hostility to the highest extent. Additionally, they exhibited the highest score in terms of dynamic expansion, advertising, segmentation, pricing, and marketing initiatives. They also undertake diversification and integration to the highest extent. Companies in this clusters have the highest degree of participative management, proactiveness, and risk-taking propensity. The number of employees is also the highest. These characteristics resemble several attributes of the revival OLC stage, such as diversification and being expansion-focused, bold, and proactive in a hostile environment (Miller & Friesen, 1984), thus the cluster was labelled the revival stage.

Companies in cluster 4 exhibit the lowest scores across several factors including the use of sophisticated information systems, action planning, environmental scanning, delegation, and product innovation. They also have the lowest extent of participative management, proactiveness, and risk-taking propensity. Additionally, companies in this cluster have the lowest score on the application of comprehensive, multi-factor, integrated, strategic, and adaptive decision-making. The number of employees in this cluster also the lowest compared to others. These attributes clearly represented the characteristics of companies in the birth stage (Miller & Friesen, 1984), thus the cluster was labelled the birth stage.

In line with the specification above, the confirmatory variable of the number of employees showed substantial increases from birth, growth,

maturity, and revival OLC stages, which match the characteristics of companies in these four OLC stages reported in prior studies (Kallunki & Silvola, 2008; Su et al., 2015, 2017). Hence, it is plausible to conclude that the classification of OLC stages in this study was adequately undertaken.

4.2 Hypotheses testing results

One-way analysis of variance (ANOVA) was conducted to assess the difference of the use of MPM perspectives across OLC stages and within each OLC stage. As noted previously, the decline stage is not included in the analysis. Table 5 shows significant differences in the use of each and all MPMs perspectives are across OLC stages ($p < 0.05$ for financial perspective and $p < 0.01$ for both other and all perspectives). Significant differences in use of each and all MPM perspectives within each OLC stage were also observable in all but the revival stage. In addition, companies in the growth stage exhibit the highest mean scores for each and all MPM, perspectives, while those in the birth stage exhibit the lowest. Similar patterns of MPMs use are demonstrated by companies in the maturity and growth stages where perspective with highest (lowest) extent of use in those OLC stages was customer (learning and growth). However, companies in the birth stage shows a slightly different pattern where MPMs perspective with the most (least) usage was financial (learning and growth). This is in line with revenue-generated objectives that typically become the primary goal among newly-established companies (Miller & Friesen, 1984; Su et al., 2015, 2017).

Table 5: ANOVA Results Comparing the Use of MPMs Perspectives Across OLC Stages and Within Each Stage

Category	Overall	Mean				F	Sig.
		Maturity	Growth	Revival	Birth		
MPM: Financial	5.40	5.36	5.87	5.25	5.09	3.877	0.012**
MPM: Customer	5.57	5.61	6.27	5.54	4.85	10.295	<0.01***
MPM: Internal business processes	5.15	5.01	6.06	4.99	4.55	6.710	<0.01***
MPM: Learning and growth	4.52	4.31	5.36	5.00	3.42	13.462	<0.01***
MPM: All perspectives	5.16	5.07	5.89	5.20	4.48	13.625	<0.01***
F	4.849	3.510	0.846	9.714			
Sig.	<0.01***	<0.01***	0.50	<0.01***			

Note: *** Significant at 0.01; ** significant at 0.05

Table 6 lists the pairwise comparison results which complement those in Table 5. It is observable that the use of financial perspective of MPMs was significantly different for companies in the growth stage than in the maturity ($p < 0.05$) and birth ($p < 0.01$) stages. Growth-stage companies exhibit greater use of financial perspectives than maturity- and birth-stage companies. H_{1a} is therefore supported. Conversely, the use of financial perspective of MPMs was not significantly different between companies in the revival stage and those in maturity and birth stages (all $p > 0.1$). This provides no support for H_{1b} . Furthermore, the use of the customer perspective of MPMs varies significantly between companies in the growth stage and those in the maturity and birth stages (all $p < 0.01$), where growth companies showing a greater extent of use. This supports H_{2a} . The use of this perspective was not significantly different between companies in the revival and maturity stages ($p > 0.1$), but differ significantly between revival- and birth-stage companies ($p < 0.05$), with the former using it to a greater extent. This provides partial support for H_{2b} .

The use of internal business processes perspective of MPMs was also significantly different between companies in the growth, maturity, and birth stages (all $p < 0.01$), which supports H_{3a} . Growth-stage companies use this perspective to a greater extent than those in the maturity and birth stages. Nonetheless, the use of this perspective does not significantly differ between companies in the revival, maturity, and growth stages (all $p > 0.1$), which lends no support for H_{3b} .

The use of the learning and growth perspective of MPMs was significantly different between growth-stage companies and those in the maturity and birth stages (all $p < 0.01$), with a greater extent of use observable across growth-stage companies. This lends support for H_{4a} . There is a marginally significant variance in the use of this perspective between companies in the revival and maturity stages ($p < 0.1$), and a significant difference between revival- and birth-stage companies ($p < 0.01$). It is observable that revival-stage companies use the learning and growth perspective to a greater extent than maturity- and birth-stage companies. Hence, H_{4b} is supported.

Finally, the use of all perspectives of MPMs was significantly different between companies in growth stage, and those in the maturity and birth stages ($p < 0.01$), where growth-stage companies used all MPMs perspectives to a greater extent, supporting H_{5a} . Additionally, the use of all perspectives in MPMs differed significantly between the revival and birth stages ($p < 0.01$), but not with the maturity stage ($p > 0.1$). Hence, a greater extent of use of these measures is observable among companies in the revival stage than those in the birth stage, but not maturity-stage companies. This lends partial support for H_{5b} .

Table 6: Pairwise Comparison Results of the Use of Each and All Perspectives of MPMs

Category	p-values (and related hypothesis)				
	MPM: Financial	MPM: Customer	MPM: Internal business processes	MPM: Learning and growth	MPM: All perspectives
Growth vs. birth	<0.01*** <i>H1a (1/2)</i>	<0.01*** <i>H2a (1/2)</i>	<0.01*** <i>H3a (1/2)</i>	<0.01*** <i>H4a (1/2)</i>	<0.01*** <i>H5a (1/2)</i>
Maturity vs. growth	0.043** <i>H1a (2/2)</i>	<0.01*** <i>H2a (2/2)</i>	<0.01*** <i>H3a (2/2)</i>	<0.01*** <i>H4a (2/2)</i>	<0.01*** <i>H5a (2/2)</i>
Revival vs. birth	0.538 <i>H1b (ns)</i>	0.041** <i>H2b (1/2)</i>	0.261 <i>H3b (ns)</i>	<0.01*** <i>H4b (1/2)</i>	<0.01*** <i>H5b (1/2)</i>
Maturity vs. revival	0.691 <i>H1b (ns)</i>	0.824 <i>H2b (ns)</i>	0.955 <i>H3b (ns)</i>	0.076* <i>H4b (2/2)</i>	0.667 <i>H5b (ns)</i>
Growth vs. revival	0.033**	<0.01***	<0.01***	0.327	<0.01***
Maturity vs. birth	0.250	<0.01***	0.267	<0.01***	0.011**

Note: *** Significant at 0.01; ** significant at 0.05; * significant at 0.1

5. Discussion and Conclusion

5.1 Discussion of findings

Table 6 above shows the hypotheses testing results. Results from H_{1a} and H_{2a} are in line with the arguments from prior OLC studies, which highlight the importance of attaining financial and customer-related targets by companies in the growth stage, which typically focus on growing the business by having more customers and achieving target revenues and profits (Su et al., 2015, 2017; Pasch, 2019). On the other hand, H_{1b} and H_{2b} results imply a similar focus placed on financial and customer aspects by companies in the maturity and revival stages. Nevertheless, companies in the revival stage place a greater importance on customer value than companies in the birth stage, which may be due to the experiential and know-how differences between companies in these two stages (Moore & Yuen, 2001; Silvola, 2008).

H_{3a} and H_{4a} results demonstrate the greater importance placed by growth-stage companies on factors that drive favourable financial- and customer-related outcomes compared to maturity-stage companies, in line with previous studies (Moore & Yuen, 2001; Akroyd, Kober & Li, 2019). Furthermore, as displayed in H_{3b} and H_{4b} , companies in the revival stage place significantly more emphasis on employees, technology, and innovation

factors, which is embodied by the learning and growth perspective (Kaplan & Norton, 1996, 2001). This is in line with the innovative and participative approaches characterised by companies in this stage (Miller & Friesen, 1984).

Moreover, as predicted in H_{5a} , growth-stage companies appear to utilise all perspectives of MPMs to a greater extent than maturity- and birth-stage companies. This aligns with prior studies that find critical performance measures being used companies in this stage to facilitate growth, increase market share, and achieve financial objectives (Su et al., 2015, 2017). Lastly, it is noticeable in H_{5b} that companies in the revival stage applied all MPM perspectives to a greater extent than companies in the birth stage, but not the maturity stage. This affirms past arguments on the use of more sophisticated PMSs by companies in the revival stage (Kallunki & Silvola, 2008; Silvola, 2008).

5.2 Conclusion

This study used a configuration approach to analyse the association between OLC stages and MPM usage. The MPMs examined consist of four perspectives, namely financial, customer, internal business processes, and learning and growth, in line with BSC (Kaplan & Norton, 1996, 2001). The OLC stages examined are birth, growth, maturity, and revival, based on Miller and Friesen's (1984) typology. Consistent with prior studies (Moores & Yuen, 2001; Su et al., 2015, 2017), a cluster analysis with hierarchical agglomeration and Ward's minimum variance method were used to classify companies into their respective OLC stages. Results indicate significant differences in the use of each and all MPM perspectives across OLC stages.

Overall, the highest extent of use of each and all perspectives of MPMs are noticeable across growth-stage companies, and the lowest extent across birth stage companies. Further analysis indicated a significantly greater extent of use of each and all MPM perspectives by companies in the growth stage than companies in maturity and birth stages. Customer perspective and all MPMs perspectives were used to a greater extent for companies in the revival stage compared to the birth stage. The use of the learning and growth perspective was found to be higher and marginally higher across revival-stage companies than in birth-stage and maturity-stage companies, respectively. Taken together, these results are in line with prior OLC studies highlighting the greater usage of more comprehensive PMSs across growth-stage companies, and to some extent, revival-stage companies. This is due to more expansive, innovative, value-creation and forward-looking initiatives associated with companies in these stages (Miller & Friesen, 1984; Moores & Yuen, 2001; Silvola, 2008).

This study provides contributions to contingency-based PMSs and OLC literature in several ways. Firstly, this is arguably among the first

management accounting-based OLC studies that specifically examines the association between OLC stages and the use of each and all MPMs perspectives. Consistent with suggestions that OLC-related management accounting studies are still few in number (Granlund & Taipaleenmaki, 2005; Auzair, 2015), this study complements findings from prior OLC-based studies (Moores & Yuen, 2001; Kallunki & Silvola, 2008; Silvola, 2008; Phan et al., 2014; Su et al., 2015, 2017) by providing up-to-date empirical evidence on the use of each and all MPMs perspectives across different OLC stages and in particular, across companies in the growth and revival stages.

The results of this study also reaffirm the argument from contingency theory (Otley, 1980; Chenhall, 2003) about the relationship between contingency factors and organisational PMS practices. Secondly, since research examining the adoption of multiple PMSs in developing countries is still limited (Hoque, 2014), the present study extends PMS literature by providing empirical evidence on the role of OLC stages in PMS adoption across Indonesian manufacturing companies. This study also offers practical implications for organisational managers, by encouraging them to consider the OLC stage of their companies when making strategic decisions, as it can affect the extent of MPM usage. This allows managers to understand the strategic implications of their organisation's PMS practices, and assess the alignment of these practices with the characteristics and objectives of each OLC stage. The results of this study may also provide managers with insight into the usefulness of understanding the role of the four contingent characteristics that determine OLC stages (i.e., situation, strategy, structure, and decision-making style) as they can eventually translate into the adoption of the MPM perspectives that companies need in contemporary business settings.

This study is subject to several limitations. Firstly, the classification of companies into their respective OLC stages was done through cluster analysis, which in line with the notion of configuration approach or 'fit' (Gerdin & Greve, 2004). The classification is also based on established OLC typology of Miller and Friesen (1984). Yet, results may differ if different OLC classification approaches are used (e.g. Auzair & Langfield-Smith, 2005; Kallunki & Silvola, 2008), or with different OLC typologies (e.g. Lester, Parnell & Carraher, 2003). Future studies can use different OLC classification approaches and/or different typologies. Secondly, this study uses managers of manufacturing companies as respondents. Thus, generalisation of results to other sectors should be done cautiously. Future studies can address this limitation by surveying respondents from other sectors, such as services or merchandising. Thirdly, it is obvious that number of respondents in this study may affect the number of companies eventually classified into each OLC stage. Upcoming studies can rectify this shortcoming by increasing the number of firms initially contacted to increase the likelihood of obtaining

more responses. Despite these limitations, the study provides meaningful insights for both academics and practitioners with its examination of the relationship between OLC stages and the use of MPMs across manufacturing companies.

Note

1. In line with prior OLC studies (Su et al., 2015, 2017; Pasch, 2019) the decline stage was not included in the analysis of this study.

References

- Akroyd, C., Kober, R., & Li, D. (2019). The Emergence of Management Controls in an Entrepreneurial Company. *Accounting and Finance*, 59, 1805–1833. <https://doi.org/10.1111/acfi.12477>
- Asiaei, K., & Jusoh, R. (2017). Using a Robust Performance Measurement System to Illuminate Intellectual Capital. *International Journal of Accounting Information Systems*, 26, 1–19. <https://doi.org/10.1016/j.accinf.2017.06.003>
- Auzair, S. M. (2015). A Configuration Approach to Management Control Systems Design in Service Organizations. *Journal of Accounting and Organizational Change*, 11(1), 47–72. <https://doi.org/10.1108/JAOC-08-2012-0064>
- Auzair, S. M., & Langfield-Smith, K. (2005). The Effect of Service Process Type, Business Strategy and Life Cycle Stage on Bureaucratic MCS in Service Organizations. *Management Accounting Research*, 16, 399–421. <https://doi.org/10.1016/j.mar.2005.04.003>
- Banker, R. D., Chang, H., & Pizzini, M. J. (2004). The Balanced Scorecard: Judgmental Effects of Performance Measures Linked to Strategy. *Accounting Review*, 79(1), 1–23. <https://doi.org/10.2308/accr.2004.79.1.1>
- Bedford, D. S., & Spekle, R. (2018). Construct validity in survey-based management accounting and control research. *Journal of Management Accounting Research*, 30(2), 23–58. <https://doi.org/10.2308/jmar-51995>
- Bisbe, J., & Malagueño, R. (2012). Using Strategic Performance Measurement Systems for Strategy Formulation: Does it Work in Dynamic Environments? *Management Accounting Research*, 23, 296–311. <https://doi.org/10.1016/j.mar.2012.05.002>
- Chenhall, R. H. (2003). Management Control Systems Design within its Organizational Context: Findings from Contingency-based Research and Directions for the Future. *Accounting, Organizations and Society*, 28, 127–168. [https://doi.org/10.1016/S0361-3682\(01\)00027-7](https://doi.org/10.1016/S0361-3682(01)00027-7)
- Davila, T. (2005). An Exploratory Study on the Emergence of Management Control Systems: Formalizing Human Resources in Small Growing Firms. *Accounting, Organizations and Society*, 30, 223–248. <https://doi.org/10.1016/j.aos.2004.05.006>

- De Geuser, F., Mooraj, S., & Oyon, D. (2009). Does the Balanced Scorecard Add Value? Empirical Evidence on its Effect on Performance. *European Accounting Review*, 18(1), 93–122. <https://doi.org/10.1080/09638180802481698>
- Dossi, A., & Patelli, L. (2010). You Learn from What You Measure: Financial and Non-Financial Performance Measures in Multinational Companies. *Long Range Planning*, 43, 498–526. <https://doi.org/10.1016/j.lrp.2010.01.002>
- Gerdin, J., & Greve, J. (2004). Forms of Contingency Fit in Management Accounting Research—A Critical Review. *Accounting, Organizations and Society*, 29, 303–326. [https://doi.org/10.1016/S0361-3682\(02\)00096-X](https://doi.org/10.1016/S0361-3682(02)00096-X)
- Gong, M.Z., & Ferreira, A. (2014). Does Consistency in Management Control Systems Design Choices Influence Firm Performance? An Empirical Analysis. *Accounting and Business Research*, 44(5), 497–522. <https://doi.org/10.1080/0014788.2014.901164>
- Granlund, M., & Taipaleenmaki, J. (2005). Management Control and Controllershship in New Economy Firms—A Life Cycle Perspective. *Management Accounting Research*, 16, 21–57. <https://doi.org/10.1016/j.mar.2004.09.003>
- Guenther, T.W., & Heinicke, A. (2019). Relationships among Types of Use, Levels of Sophistication, and Organizational Outcomes of Performance Measurement Systems: The Crucial Role of Design Choices. *Management Accounting Research*, 42, 1–25. <https://doi.org/10.1016/j.mar.2018.07.002>
- Hall, M. (2008). The Effect of Comprehensive Performance Measurement Systems on Role Clarity, Psychological Empowerment and Managerial Performance. *Accounting, Organizations and Society*, 33, 141–163. <https://doi.org/10.1016/j.aos.2007.02.004>
- Hall, M. (2011). Do Comprehensive Performance Measurement Systems Help or Hinder Managers' Mental Model Development? *Management Accounting Research*, 22, 68–83. <https://doi.org/10.1016/j.mar.2010.10.002>
- Henri, J. F. (2006). Organizational Culture and Performance Measurement Systems. *Accounting, Organizations and Society*, 31(1), 77–103. <https://doi.org/10.1016/j.aos.2004.10.003>
- Ho, J. L. Y., Wu, A., & Wu, S.Y.C. (2014). Performance Measures, Consensus on Strategy Implementation, and Performance: Evidence from the Operational-Level of Organizations. *Accounting, Organizations and Society*, 39, 38–58. <https://doi.org/10.1016/j.aos.2013.11.003>
- Hoque, Z. (2014). 20 Years of Studies on the Balanced Scorecard: Trends, Accomplishments, Gaps and Opportunities for Future Research. *The British Accounting Review*, 46(1), 33–59. <https://doi.org/10.1016/j.bar.2013.10.003>
- Huang, H. C., Chu, W., & Wang, W. K. (2007). Strategic Performance Measurement and Value Drivers: Evidence from International Tourist Hotels in an Emerging Economy. *The Service Industries Journal*, 27(8), 1111–1128. <https://doi.org/10.1080/02642060701673778>
- Ittner, C. D., & Larcker, D. F. (1998). Innovations in Performance Measurement:

- Trends, and Research Implications. *Journal of Management Accounting Research*, 10, 206–238. <https://ssrn.com/abstract=137278>
- Ittner, C. D., Larcker, D. F., and Randall, T. (2003). Performance Implications of Strategic Performance Measurement in Financial Services Firms. *Accounting, Organizations and Society*, 28, 715–741. [https://doi.org/10.1016/S0361-3682\(03\)00033-3](https://doi.org/10.1016/S0361-3682(03)00033-3)
- Jusoh, R., Ibrahim D. N., & Zainuddin, Y. (2008). The Performance Consequence of Multiple Performance Measures Usage: Evidence from the Malaysian Manufacturers. *International Journal of Productivity and Performance Management*, 57(2), 119–136. <https://doi.org/10.1108/17410400810847393>
- Kallunki, J. P., & Silvola, H. (2008). The Effect of Organisational Life Cycle Stage on the Use of Activity-based Costing. *Management Accounting Research*, 19, 62–79. <https://doi.org/10.1016/j.mar.2007.08.002>
- Kaplan, R. S., & Norton, D. P. (1996). Linking the Balanced Scorecard to Strategy. *California Management Review*, 39(1), 53–79. <https://doi.org/10.2307/41165876>
- Kaplan, R. S., & Norton, D. P. (2001). Commentary – Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part I. *Accounting Horizons*, 15(1), 87–104. <https://doi.org/10.2308/acch.2001.15.1.87>
- Lester, D. L., Parnell, J. A., & Carraher, S. (2003). Organizational Life Cycle: A Five-stage Empirical Scale. *International Journal of Organizational Analysis*, 11(4), 339–354. <https://doi.org/10.1108/eb028979>
- Manufakturindo. (2024). Indonesia Manufacture Companies Database. Manufakturindo. <http://en.manufakturindo.com/>
- Miller, D., & Friesen, P. H. (1984). A Longitudinal Study of the Corporate Lifecycle. *Management Science*, 30(10), 1161–1183. <https://www.jstor.org/stable/2631384>
- Milliman, J., Von Glinow, M. A., & Nathan, M. (1991). Organizational Life Cycles and Strategic International Human Resource Management in Multinational Companies: Implications for Congruence Theory. *Academy of Management Review*, 16(2), 318–339. <https://doi.org/10.5465/amr.1991.4278949>
- Moores, K., & Yuen, S. (2001). Management Accounting Systems and Organizational Configuration: A Life-cycle Perspective. *Accounting, Organizations and Society*, 26, 351–389. [https://doi.org/10.1016/S0361-3682\(00\)00040-4](https://doi.org/10.1016/S0361-3682(00)00040-4)
- Otley, D. (1980). The Contingency Theory of Management Accounting: Achievement and Prognosis. *Accounting, Organizations and Society*, 5(4), 413–428. [https://doi.org/10.1016/0361-3682\(80\)90040-9](https://doi.org/10.1016/0361-3682(80)90040-9)
- Pasch, T. (2019). Organizational Lifecycle and Strategic Management Accounting. *Journal of Accounting & Organizational Change*, 15(4), 580–604. <https://doi.org/10.1108/JAOC-10-2018-0108>
- Phan, T. N., Baird, K., & Blair, B. (2014). The Use and Success of Activity-based Management Practices at Different Organisational Life Cycle Stages. *International Journal of Production Research*, 52(3), 787–803. <https://doi.org/10.1080/00207543.2013.839893>

- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology, 88*(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Podsakoff, P. M., & Organ, D.W. (1986). Self-reports in Organizational Research: Problems and Prospects. *Journal of Management, 12*(4), 531–544. <https://doi.org/10.1177/014920638601200408>
- Quinn, R.E., & Cameron, K. (1983). Organizational Life Cycles and Shifting Criteria of Effectiveness: Some Preliminary Evidence. *Management Science, 29*(1), 33–51. <https://doi.org/10.1287/mnsc.29.1.33>
- Silvola, H. (2008). Do Organizational Life-Cycle and Venture Capital Investors affect the Management Control Systems used by the Firm? *Advances in Accounting, 24*, 128–138. <https://doi.org/10.1016/j.adiac.2008.05.013>
- Smith, K. G., Mitchell, T. R., & Summer, C. E. (1985). Top Level Management Priorities in Different Stages of the Organizational Life Cycle. *Academy of Management Journal, 28*(4), 799–820. <https://psycnet.apa.org/doi/10.2307/256238>
- Su, S., Baird, K., & Schoch, H. (2015). The Moderating Effect of Organisational Life Cycle Stages on the Association Between the Interactive and Diagnostic Approaches to Using Controls with Organisational Performance. *Management Accounting Research, 26*, 40–53. <https://doi.org/10.1016/j.mar.2014.09.001>
- Su, S., Baird, K., & Schoch, H. (2017). Management Control Systems: The Role of Interactive and Diagnostic Approaches to Using Controls from an Organizational Life Cycle Perspective. *Journal of Accounting and Organizational Change, 13*(1), 2–24. <https://doi.org/10.1108/JAOC-03-2015-0032>
- Tawse, A., & Tabesh, P. (2023). Thirty Years with the Balanced Scorecard: What We Have Learned. *Business Horizons, 66*, 123–132. <https://doi.org/10.1016/j.bushor.2022.03.005>
- Van der Stede, W. A., Chow, C. W., & Lin, T. W. (2006). Strategy, Choice of Performance Measures, and Performance. *Behavioral Research in Accounting, 18*, 185–205. <https://doi.org/10.2308/bria.2006.18.1.185>
- Van der Stede, W. A., Young S. M., & Chen C. X. (2007). Doing Management Accounting Survey Research. In C. S. Chapman, A. G. Hopwood, & M. D. Shields (Eds.), *Handbook of Management Accounting Research* (pp. 445–478). Elsevier. [https://doi.org/10.1016/S1751-3243\(06\)01018-2](https://doi.org/10.1016/S1751-3243(06)01018-2)
- Wahlberg, A.E., & Poom, L. (2015). An Empirical Test of Nonresponse Bias in Internet Surveys. *Basic and Applied Social Psychology, 37*, 336–346. <https://doi.org/10.1080/01973533.2015.1111212>
- World Bank (2021). *Manufacturing, value added (% of GDP) – Indonesia*. World Bank. <https://data.worldbank.org/indicator/NV.IND.MANF.ZS?locations=ID>

Appendix

Survey items

A. Organisational life-cycle stages

Please indicate the extent to which the following statements reflect the work environment in your company (1 = not at all, 7 = to a great extent):

Strategy:

1. Your company has major, frequent product innovations.
2. Your company has small, incremental product modifications.
3. Your company follows the lead of competitors.
4. Your company uses acquisition to diversify into unrelated lines.
5. Your company diversifies into unrelated lines by establishing its own departments or subsidiaries.
6. Your company undertakes geographical expansion.
7. Your company engages in up vertical integration (e.g., buying raw material sources).
8. Your company engages in down vertical integration (e.g., buying retail outlets).
9. Your company has extensive advertising and promotional expenditure.
10. Your company has a selective approach to new product introduction.
11. Your company uses middlemen (agents) in marketing.
12. Your company has market segmentation (e.g., providing different product lines for different markets).
13. Your company engages in price cutting.

Situations:

14. The decisions and operations of your company are influenced by the boards of directors (or owners).
15. The decisions and operations of your company are influenced by owners/shareholders.
16. The decisions and operations of your company are influenced by the customers.
17. Your company experienced environmental dynamism (evidenced by the unpredictability of changes in customer tastes, production technologies).
18. Your company experienced environmental hostility (evidenced by the intensity of competition and other external influences).
19. Your company experienced environmental heterogeneity (evidenced by the differences in competitive tactics, customer tastes, product lines, channels of distribution).

Structure:

20. Your company has a participative management (e.g., managers get together with their subordinates to make decisions).
21. Your company has a sophisticated management information system.
22. An action planning is used in your company (includes formal strategic and project planning and review procedures, the use of capital budgeting techniques, and market forecasting).
23. An environmental scanning is used in your company (involves identification of threats and opportunities in the external environment).
24. Your company has an effective internal communication system.
25. The strategy formulation in your company is undertaken in a centralised way.
26. Delegation of operating authority is undertaken in your company.

Decision-making style:

27. Your company has a proactive decision-making (e.g., has initiative to introduce new products or technology).
28. Your company is willing to take risks.
29. Your company undertakes extensive analysis of major and strategic decisions.
30. Multiplexity aspect of decisions (e.g., consideration of a broad range of factors in making strategic decisions) is considered in your company.
31. Integration aspect of decisions is observable in your company (i.e. actions in one area are complementary or supportive of those in other related areas, e.g. divisions, functions).
32. Futurity aspect of decisions (e.g., incorporating a long-term planning horizon relative to the industry) is considered in your company.
33. Employees and managers in your company have a clear consciousness and commitment to the company's strategy.
34. Adaptiveness of decisions (e.g., concerning the responsiveness and appropriateness of decisions to market requirements and external environmental conditions) is observable in your company.
35. Top managers in your company have industry expertise (i.e., they are in a position to make decisions because of their excellent knowledge of internal operations and the outside environment).

B. Multiple performance measures

Please rate the extent to which each of the following measures are used by the top management team in your company (1= not at all, and 7= to a very great extent).

Financial:

1. Operating income
2. Sales growth
3. Return on investment
4. Return on equity
5. Net cash flows
6. Costs per unit produced

Customer:

7. Market share
8. Customer response time
9. On-time delivery
10. Number of customer complaints
11. Number of warranty claims
12. Survey of customer satisfaction

Internal business processes:

13. Materials efficiency variance
14. Manufacturing lead time
15. Rate of material scrap loss
16. Labour efficiency variance

Learning and growth:

17. Number of new patents
18. Number of new product launches
19. Time-to-market for new products
20. Employee satisfaction