

**Non-Financial Performance Measures and Performance:
Examining The Mediation Role of Innovation
in An Indonesia Stock Exchange-Listed Organisations**

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Abstract: *This study aims to investigate the impact of non-financial performance measures on individual performance through innovation in the Indonesia Stock Exchange-listed organisation. According to a survey study, I analysed the usable data using SmartPLS. The results of the study show that a non-financial performance measures has a positive impact on individual performance fully mediated by innovation. Thus, reliance on non-financial indicators could enhance innovativeness that lead to the improvement of managerial performance. This study implies that managers should include non-financial performance measures to enhance innovation that it can lead the improvement of individual performance.*

Keywords: *performance, non-financial performance, individual performance, innovation*

1. Introduction

Scholar notes that the adoption non-financial information measures become important to handle the limitation of the use of financial performance measures as a single indicator. In addition, using non-financial performance measures can effectively enhance organizational strategy through communication between parties in the organization (Lee & Yang, 2011). In addition, scholars also support that the use of non-financial performance measures could boost long-term company successful (Abernethy & Lillis, 1995; Banker, Gordon, & Srinivasan, 2000; Banker, Potter, & Srinivasan, 2005; Hoque, 2005; Ittner & Larcker, 1998b; Kaplan, 1984; Mia & Clarke, 1999; Smith & Wright, 2004).

Lee and Yang (Lee & Yang, 2011) draw an assumption that when an organisation uses performance measures, for example employees indicator, it will create internal process that drive to the improvement of quality of production that can influence performance. However, although

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numerous authors have mentioned the important of non-financial performance measures (NFPM) due to shortcoming of solely use of accounting performance measures, the study of this area is an under exposure. Supporting this argument, Hyvönen (2007, p.360) advocated that ‘there has not been much research on non-financial management accounting systems, more work on non-financial measures is needed’. Thus, the objective of this study is to investigate the extent to which NFPM enhance performance. In particular, this study is to test the extent to which the role of NFPM in managerial level.

It is believed that the use of non-financial performance measures not only enables to improve organizational performance, but it also can improve managerial performance. Although, more a decade some scholars such as Atkinson et al. (1997a) advocated the importance of studying on how performance effect desired behaviour, the empirical study examining the behaviour effect of non-financial performance measures is scare. Similar with Hartmann (2000, p. 477) stated that “both theory and development and empirical evident”. As many researches were conducted investigating the evaluating style of managerial performance using accounting and financial data (Hartmann, 2000; Sholihin & Pike, 2007). Evaluating these effect on individual is important because the successful of the company is not merely determined by company’s strategies but it is also partly influenced by individual behaviour within company as assessor to pursue those strategies (Otley, 1999). So that it is important for the research investigating how the use non-financial performance measure could contribute on an individual performance.

However, to the best our knowledge, the empirical study in relationship improvement performance through innovation using non-financial performance is hardly to be found. This argument is supported from the previous study mentioning that ‘the relationship between performance measures and the development of innovative managerial practices (IMPs) is far from clear’(Abdel-Maksoud, Cerbioni, Ricceri, & Velayutham, 2010, p. 36). To the best of my knowledge, I only found Bisbe & Otley (2004) did similar idea. However, they have already investigates the effect of innovation in the organizational level rather than in the managerial level. Furthermore, they (2004) did not found evidence the effect of interactive PMS and organizational performance through innovation.

According to these arguments, this study focuses on ‘*to what extent does non-financial performance measurement affect managerial performance directly and through innovation ?*’ In order to attempt our study, we did an investigation to the Indonesian stock exchange-listed companies because the most advance and largest companies in Indonesia are mostly listed in on stock exchange.

We pointed out that this study has several contributions. Firstly, we explicate how the non-financial performance measurement can lead the spirit of innovation of a member of organization that lead to the enhancement of managerial performance. Secondly, we provide empirical study of the implementation of multi measures in the Asian countries more specifically in Indonesia. As noted that previous accounting studies have observed in the North America and western countries (Hussain & Hoque, 2002). However, very few studies were conducted in Asian countries, or in Indonesia. Scapens & Bromwich (2010) and Lindquist & Smith (2009) note that studies in management accounting literature that were conducted in Asian countries and published in management accounting journal was counted as low as 5% within 20 years. Thus this study provides contributions implementation performance measures in Indonesia.

For the next of paper will be organized as follow: the next section will review the literature of non-financial performance measures; Section 3 will describe development of hypotheses; section four will explain our research methods; in the section 5 will describe result; and lastly, section 6 will explain our finding, conclusion and limitation.

2. Literature Review and Hypotheses Development

2.1. Literature Review

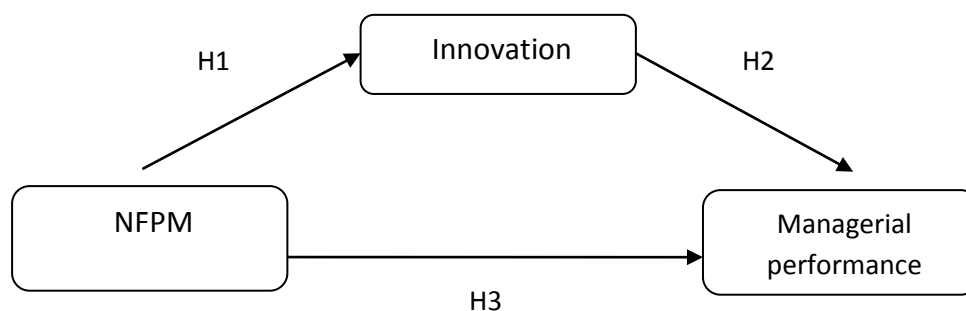
Perceived gaps of financial performance measures, most companies place emphasis of the use of non-financial performance measurement to provide relevance value of decision makers related to customers and employee, market share, product service quality, on-time metric (Ittner & Larcker, 1998b; Kaplan & Norton, 2001). Non-financial performance measures are applied to generate forward looking information that cannot be captured using its counterpart, financial performance measures (Decoene & Bruggeman, 2006; van Veen-Dirks, 2010). For example, Ittner & Larcker (1998a) says that the higher consideration about improvement of service quality to enhance customers

satisfaction, non-financial performance measures can be act as a key driver to enhance firm value. Another, Decoene & Bruggeman (2006) contend that these performance measures also enable to be used to help employees to facilitate long-term goals including explanation their actions (Decoene & Bruggeman, 2006)

The emergency of the use non-financial measures believed that could balance the advantage of financial of financial measures as short-term indicator of progress to long-term goal achievement of companies, enhance managers' level performance by providing better indicator performance (Banker et al., 2000; Banker et al., 2005; Kaplan & Norton, 1992, 1996b; Vaivio, 1999). In addition, some academics say that the use of non-financial performance measures make employees more flexible do their action (Moulang, 2013). It is because the measures avoid employee's burden to be creative whereas RAPM is more highly focuses on financial budget. Hence, this flexibility can lead employees to explore the alternative to generate effective and efficient ways achieving target. Further, this way stimulates members of organization to be more creative in doing job that lead to the enhancement innovation (Balsam, Fernando, & Tripathy, 2011). Since then, this innovation is more likely to increase managerial performance. On other way, we believe that NFPM may enhance managerial through innovation.

Based on the above argument, I propose that non-financial performance measures can enhance managerial performance through innovation. Hence, I develop the following research framework:

Figure 1. A research framework



The following section discusses further explanation preposition into each hypothesis:

2.2. *Hypotheses Development*

2.2.1 *Non-Financial Performance Measurement and Innovation*

It is argued that non-financial performance measurement has a positive relationship with innovation. Different from financial accounting performance, the obvious advantage of non-financial performance measurement is that it is enable to capture broader aspects of performance compared financial accounting performance measures (Hartmann, 2000; Vaivio, 1999). Vagneur & Peiperl (2000 p. 512) said that the use of APM may lead to ‘higher level of data manipulation distrust, rivalry and dysfunctional decision making vis-à-vis cost, customer service and innovation’. Similarly, a company that reliance of financial information is less innovative organization (Dunk, 2011; Storey & Kelley, 2001). Jon & Delbecq (1977) noted that innovation is more complex; thus, measuring complexity of innovation is not appropriate using accounting performance measures. Supporting above argument, Balsam et al (2011) contend that innovative product to pursue differentiation is difficult to be conducted since the organisation focus on accounting measures.

In contrast, non-financial performance measures are expected to stimulate creativity by offering new ideas according to the expected customers while financial performance measures (Bisbe & Otley, 2004). In addition, the use of NFMS can employee’s skills and knowledge to do innovation, where this indication is difficult to be achieved using its counterpart. Supporting this ideas Widener (2004) suggested that the use of accounting measures is negatively on strategic human capital. Vaivio (1999) explained that non-financial performance measurement has more flexible control that focus on the potential interactive role of strategic control. Due to its flexibility control, employee can be more creative to explore new ideas (Davila, Foster, & Oyon, 2009; Jørgensen & Messner, 2009; Moulang, 2013). Similarly, Bisbe & Otley (2004) revealed that using NFPM is considered to impetus individual to be more creative and informative as well as help them to develop new ideas that useful for the organization (Bisbe & Otley, 2004; Evans III, Kyonghee, Nagarajan, & Patro, 2010).

An example of well-designed PMS that included NFPM is balanced scorecards from Kaplan and Norton (1992, 1996b). McPhail, Herington, & Guilding (2008) pointed out that one of perspectives of the balanced scorecards – internal business process – has a closely linked to innovation. In this

perspective how a member within a company seek ways of internal business process to gather the work more efficient and continuously improve to enhance customer satisfaction (McPhail et al., 2008). Based on this argument, I propose a hypothesis as follows:

H1. *There are positive relationship between non-financial performance measurement and innovation*

2.2.2 *Innovation and Managerial Performance*

In some cases in reserch studies, Scott & Bruce (1994) note that creativity and innovation may be defined interchangeably. In addition, they (1994) mentioned that the difference between both of them is that one more on an explanation of ‘emphasis than of substance’. Innovative ideas and insight that may suggest a new strategy can arise at lower level divisions within organization (Vaivio, 2004). Lumpkin & Dess (1996) say that Innovativeness can be achieved from a willingness of employee to generate new ideas or ways to be a the latest ultimate product or service or the improvement of technology.

In the organizational level, numerous authors had investigated the relationship between innovativeness and performance (Camisón & López, 2010; Henri, 2006; Hult, Hurley, & Knight, 2004). Camisón & López’s (2010) study of the Spain industrial companies demonstrated that innovation enhance organizational performance. In addition, a study undertaken by Henri (2006) in the Canadian manufacturing companies found that innovativeness has a positive influence on organisational performance.

In employee level, employee’s innovation can also improve managerial performance. Innovation facilitates as an individual motivation throughout organisation to be creative (Bharadwaj & Menon, 2000). Furthermore, Bharadwaj & Menon (2000) claim that innovation has important role as facilitator on the improvement of employee skill handling problem-solving of the existing problem. In regard it provide advantage in solve the existing problem, innovation can improve performance. Empirical evidence can be seen from Gong, Huang, & Farh’ (2009) study who found that innovation is a positively associated with managerial performance. Similarly, Subramaniam & Mia (2001) found that manager with high innovation tend to be more creative and innovative. According to these explanations; I, therefore, propose the following hypothesis:

H2. *There are positive relationship between innovation and managerial performance*

2.2.3 Non-Financial Performance Measurement and Managerial Performance

Hopwood (1972) study which was under taken in cost centre managers in an integrated single US manufacturing company show that the emphasis of the use of financial (budget constraint) has significantly correlated with job relation tension. Furthermore, the strict application of using financial data lead to a “higher level of data manipulation distrust, rivalry and dysfunctional decision making vis a vis cost, customer service and innovation” (Vagneur & Peiperl, 2000 p. 512). Although his result was debated by Otley (1978)’s study, in the current situation, the use of financial data is not appropriate. Performance is not only measured by successful financial indicators but it also can reduce the potential side of dysfunctional behavior.

Furthermore, it is believed that non-financial performance measurement lead manager to improve better in term of performance because the use of non-financial performance measures encounter the absence of broader information related to managerial actions generated from accounting measures (see: Ittner & Larcker, 2009; Van der Stede, Chow, & Lin, 2006). Vaivio (1999) noted that non-financial performance measures has an prominent factor as as strategic controls. Additionally, Banker et al. (2000; 2005) revealed that NPM create valuable indicator compared to APM that lead to motivate managerial performance. Similarly Kaplan and Norton (1992) suggested that NPM has ability helping manager to understand and solve problem. Furthermore, the obvious different between financial and non-financial is that non-financial performance measures is focus on long-term strategic objectives where it can help managers to improve their performance as it can provide indicator of performance measurement more transparent (Sholihin, Pike, & Mangena, 2010). As it can provide transparent evaluation, it helps an effective and efficient communication between upper and lower level employees about the organisation targets, where it indirectly drives performance (Lee & Yang, 2011)

The empirical studies of the effect non-financial performance measures and managerial performance have been shown from previous study such as Sholihin and Pike (2007) and (Lau &

Sholihin, 2005). These findings suggest that NFPM has a positive association with managerial performance. Thus, we formalized the following hypothesis.

H3. *There are positive relationship between non-financial performance measurement and managerial performance*

3. Research Method

3.1 Sample Selection and Data Collection

In this study, managers working in the head offices of the Indonesian stock exchange-listed companies were supplied with a self-administered survey. Managers targeted due to their high level of understanding of both performance measurement and company's strategy (Chenhall, 2005; Perera, Harrison, & Poole, 1997). In addition, the Indonesian Stock exchanges-listed companies because the largest and the most advance Indonesian companies mostly listing on stock exchange and these companies use more diverse on non-financial performance compared to small companies (Lau & Sholihin, 2005).

Of 350 questionnaires was distributed, the authors receive as much as 83 responses. We found that there are some responses are incomplete. For this case, we follow Hair, Black, Babin & Anderson (2010) suggestion mentioning that any imputation methods can be done for missing data below 10%. At their suggestion, in this study missing data was imputed with mean values. Thus, all responses are usable data with total responses 23.71%. According to one of authors and experience scholars conducting a survey in Indonesia, getting responses above 20% is very good. For example Gudono & Mardiyah (2000) said that the average rate of response rate of a mail survey is rated below 20%.

Demographic information was gathered from respondents including gender; age, education, position, and type of businesses are illustrated in Table 1.

Table 1: Demographic information

	n	%
<u>Gender</u>		
Men	41	49.45
Women	42	50.55
Total	83	100%
<u>Age</u>		
< 35	18	21.7
36-45	48	57.8
>46	17	20.5
Total	83	100%
<u>Education</u>		
Diploma	7	8.4
Bachelor	56	67.5
Master/Doctoral	20	24.1
Total	83	100
<u>Division</u>		
Accounting and finance	32	32.9
General	20	26.0
Human resources	15	16.4
Marketing	14	13.7
Others	2	11.0
Total	83	100 %
<u>Type of business</u>		
Agriculture/mining	4	5.5
Manufacturing	45	47.9
Service-non-manufacturing	31	42.5
Other	3	4.1
Total	83	100%

3.2 Variable Measurement

There are three variables in this study- non-financial performance measures (NPM), innovation and managerial performance.

3.2.1 Non-Financial Performance Measures

Non-financial performance measures is adapted from Ittner, Larcker, and Randall (2003) This measures have been subsequently applied by Sholihin, Pike, and Mangena (2010). Ittner, Larcker, and Randall (2003) describes strategic performance measures using value drivers for company's long-term success - *products and service quality, operational, products and service innovations, customers, employees, suppliers alliances, community and environmental*-which drawn from the balanced scorecard, intellectual and intangible assets as well as value-based management. Different from Ittner, Larcker, and Randall (2003) who ask conducts a research in corporate level, my question

is similar to Sholihin, Pike, and Mangena (2010, p. 30) which asking ‘how much importance respondents thought their supervisors attach to the various performance evaluation categories when evaluating their performance’. Similar to Sholihin, Pike, and Mangena’s (2010) question, this study also uses a seven-point Likert scale, anchored 1 (not importance) and 7 (always important).

3.2.2 Innovation

Innovation instrument was used by Subramaniam and Mia (2001). This measurement was originally developed by O'Reilly et al. (1991). The initial O'Reilly et al.,’s (1991) instrument was consisting of 54 item- questions. Furthermore, O'Reilly et al.’s (1991) instrument was applied by further research Chatman and Jehn (1994) and Windsor and Ashkanasy (1996). Based on the previous three researches, Subramaniam and Mia (2001) choosed instruments with the highest percentage of variance. Hence, six-item instrument – *innovation, opportunities, experimenting, risk-taking, careful and rule oriented*¹ was selected.

Respondents were asked to indicate to what extend their value as a member of organization of the statement: 1) being innovative, 2) being quick to take advantage of opportunities, 20 having willingness to experiment with new ideas, 4) being risk-taking 5) being careful 6) being rule oriented with seven-point likert scale anchored 1 (not at all) to 7 (great extent).

Table 3 presents the results of the description of variables used in the current study, containing the minimum and maximum scores, both in the theoretical and the actual score, with mean and standard deviation.

Table 2: Descriptive statistic of the variables in the study

Variable	N	Theoretical range		Actual score		Mean	SD
		Min	Max	Min	Max		
RNPM	83	1	7	1	7	6.11	0.86
Innovation	83	1	7	1	7	5.89	0.89
Managerial performance	83	1	7	1	7	5.73	0.96

3.2.3 Managerial Performance

Measurement of managerial performance was used Mahoney et al.(1965). The Mahoney et al.’s (1965) scale was extensively applied to measure managerial performance in accounting literatures

¹ Italic word is cited from original word and it can be seen from Subramaniam and Mia (2001. P. 26)

(Hall, 2008; Otley & Pollanen, 2000; Patiar & Mia, 2008; Sholihin & Pike, 2007; Webster, 2006) This questions are self-rating question asking respondents of nine-dimensional managerial performance relating to planning, investigating, coordinating, evaluating, supervising, staffing, negotiating, representing, and overall performance (see appendix a.3).

Respondents were asked to indicate the extent to which the following item used in evaluating their performance individual performance with seven-point likert scale anchored 1 (below average) to 7 (above average).

4. Result

Before assessing structural models, we conducted explanatory factor analysis using SPSS to establish uni-dimensionality. Table 3 shows that exploratory factor analysis of eight items of RNPM becomes two factors; them we labelled these factors as Products/Service indicator and Non-Products and service indicators. However, innovation is represented into one factor, where this similar to managerial performance.

Table 3. Factor loading for RNPM, innovation and managerial performancees using PASW 18.0

No	Factors	Items	Factor loading	
1	Products/Service indicator (eigenvalue =4.081, % of variance = 45,347)	RMPM4	0.496	.650
		RMPM5	0.561	.602
2	Non-Product and services indicators (Eigenvalue=1.064, % of variance = 11.824)	RMPM6	0.681	0.425
		RMPM7	0.725	0.143
		RMPM8	0.717	0.023
		RMPM9	0.754	0.131
		RMPM10	0.632	0.229
		RMPM11	0.720	0.344
3	Innovation (Eigenvalue =3.411 % of variance =56.856)	INNO1	0.856	
		INNO2	0.818	
		INNO3	0.715	
		INNO4	0.606	
		INNO5	0.730	
		INNO6	0.774	
3	Managerial performance (Eigenvalue =6.086 % of variance =67.627)	MP1	0.797	
		MP2	0.802	
		MP3	0.859	
		MP4	0.883	
		MP5	0.862	
		MP6	0.850	
		MP7	0.830	
		MP8	0.670	
		MP9	0.829	

4.1 Two Stages of Partial Least Square

In order to test the data, I apply Partial Least Square, in particularly, SmartPLS. The advantages of SmartPLS are 1) it enables to be applied for small sample and 2) it is less assumption. There are some authors in management accounting apply PLS where their data 100 or less (Chenhall, Kallunki, & Silvola, 2011; Mahama, 2006; Sholihin, Pike, Mangena, & Li, 2011b). In regard using the SmartPLS, it can be assessed into two stages level: 1) an assessing measurement model that consist on reliability and validity, and 2) the assessment of structural model. The following section discusses the two stages.

4.2 Measurement Model Stage

Measurement model stage assesses reliability and validity. There are two points that will be analysed in the measurement model of reliability: 1) Cronbach's alpha, and 2) composite reliability (internal consistency). According to rule of thumbs that the acceptable score of cronbach alpha and composite reliability are exceed than 0.6 and satisfactory level of them if it is higher than 0.7 (Birkinshaw, Morrison, & Hulland, 1995). Table 4 illustrates that Cronbach's alpha and composite reliability are ranged between 0.611 and 0.949. Thus, reliability of all variables of the study is adequate.

Table 4: AVE, composite reliability and Cronbach's alpha

Variable	AVE	Composite reliability	Cronbach's alpha
NPM1	0.710	0.830	0.611
NPM2	0.530	0.871	0.823
Innovation	0.568	0.886	0.844
Managerial performance	0.676	0.949	0.939

Another test of measurement model is the validity test. There are two types of validity test: 1) convergent validity, and 2) discriminant validity. Convergent validity is seen from Average Variance Extracted (AVE). Henseler et al (2009) says that AVE score is considered good if its score is higher than 0.5. Table 4 seems that AVE of all items is more than 0.5. Hence, convergent validity of all variables is good.

Discriminant validity is evaluated in two measures: the Fornell-Larcker measure and cross-loading. Fornell-Larcker measures can be observed through the comparing of the square root of the

AVE on the latent variables correlations. The sufficient of discriminant validity is found when value of the square root of the AVE along the diagonal is higher than correlations between constructs (Fornell & Larcker, 1981). Table 5 illustrate that all square roots of the AVE exceed than the off diagonal both rows and columns.

Table 5: Discriminant validity of latent variables correlations

Latent variables	Correlations			
	NPM1	NPM2	Innovation	Managerial performance
NPM1	0.843			
NPM2	0.460	0.728		
Innovation	0.266	0.540	0.754	
Managerial performance	0.255	0.422	0.664	0.822

In addition, measures discriminant validity through cross loading suggests that all items should greater than 0.7 and higher than any other constructs (Al-Gahtani, Hubona, & Wang, 2007; Barclay, Higgins, & Thompson, 1995). Table 6 exhibits that all constructs are above 0.7 and those constructs are greater than any other constructs. This is means that statistical result of discriminant validity is satisfactory.

Table 6: Factor loading using PLS

	NFPM1	NFM2	Innovation	MP
NFPM4	0.841	0.346	0.181	0.257
NFPM5	0.845	0.411	0.266	0.173
NFPM6	0.344	0.682	0.261	0.185
NFPM7	0.425	0.737	0.375	0.317
NFPM8	0.257	0.764	0.437	0.251
NFPM9	0.384	0.766	0.408	0.384
FNPM10	0.252	0.697	0.450	0.319
FNPM11	0.317	0.719	0.402	0.271
INNO1	0.324	0.512	0.861	0.600
INNO2	0.214	0.326	0.818	0.562
INNO3	0.113	0.566	0.729	0.410
INNO4	0.115	0.385	0.616	0.414
INNO5	0.166	0.329	0.713	0.427
INNO6	0.235	0.311	0.761	0.564
MP1	0.268	0.372	0.510	0.795
MP2	0.255	0.365	0.591	0.805
MP3	0.185	0.335	0.559	0.855
MP4	0.230	0.268	0.535	0.879
MP5	0.224	0.351	0.546	0.860
MP6	0.140	0.311	0.506	0.842
MP7	0.273	0.308	0.534	0.831
MP8	0.139	0.385	0.548	0.684
MP9	0.165	0.297	0.565	0.833

Hence, the statistical finding of reliability and validity using PLS of each construct demonstrates adequate.

4.3 *The Assessment of Structural Model and Tests of Hypotheses*

4.3.1 *The Assessment of Structural Model*

The structural model can be tested using coefficient of determination (R^2) and Path Coefficients (Urbach & Ahlemann, 2010). The aim of coefficient determination testing is to ‘attempts to measure the explained variance of an LV relative to its total variance’(Urbach & Ahlemann, 2010, p. 21). Further, this assessment was conducted by testing R^2 . A rule of thumb of acceptable of R^2 is that if its score is above 0.1 (Camisón & López, 2010; Falk & Miller, 1992). Table 7 exhibits that that R^2 of dependents variables is higher than 0.1. Thus, coefficient determination is acceptable.

Additionally, Path coefficients testing (β) is conducted to ensure that relationship between constructs is strong. This testing was carried out using a bootstrap procedures with 500 replacements (e.g. Hartmann & Slapničar, 2009; Sholihin, Pike, Mangena, & Li, 2011a). Urbach & Ahlemann (2010) claim that a path coefficient with score higher than 0.100 was considered that the relationship between constructs is strong.

Overall, measurement model and the assessment of the structural model of this study are adequate. The next steps are testing hypotheses.

4.3.2 *Tests of Hypotheses*

This study first we attempt to test the proposed hypothesis mentioning that there a positive relationship between non-financial performance measurement and innovation. According to Table 7 exhibits that there is no significant affect between NPM 1 and innovation ($\beta=0.026$, $t = 0.279$, $p < 0.1$). In contrast, NPM 2 evidences that there is a positive and significant impact on innovation ($\beta=0.533$, $t = 5.564$, < 0.01). Thus, H1 is partly supported.

In addition, Hypothesis 2 states that there is a positive relationship between innovation and managerial performance. According to Table 7, the results indicates that there is positive relationship between innovation and managerial performance ($\beta= 0.628$, $t = 5.782$, $p < 0.01$). Hence, H 2 is supported.

Table 7. The result of PLS Structural Model: Path Coefficient, t-statistics and R^2

Dependent variables	Independent variable			R ²
	NPM1	NPM2	Innovation	
Innovation	0.026 (0.279)*	0.533 (5.564)***		0.298
Managerial performance	0.075 (0.741)*	0.533 (0.256)*	0.628 (5.782)***	0.448

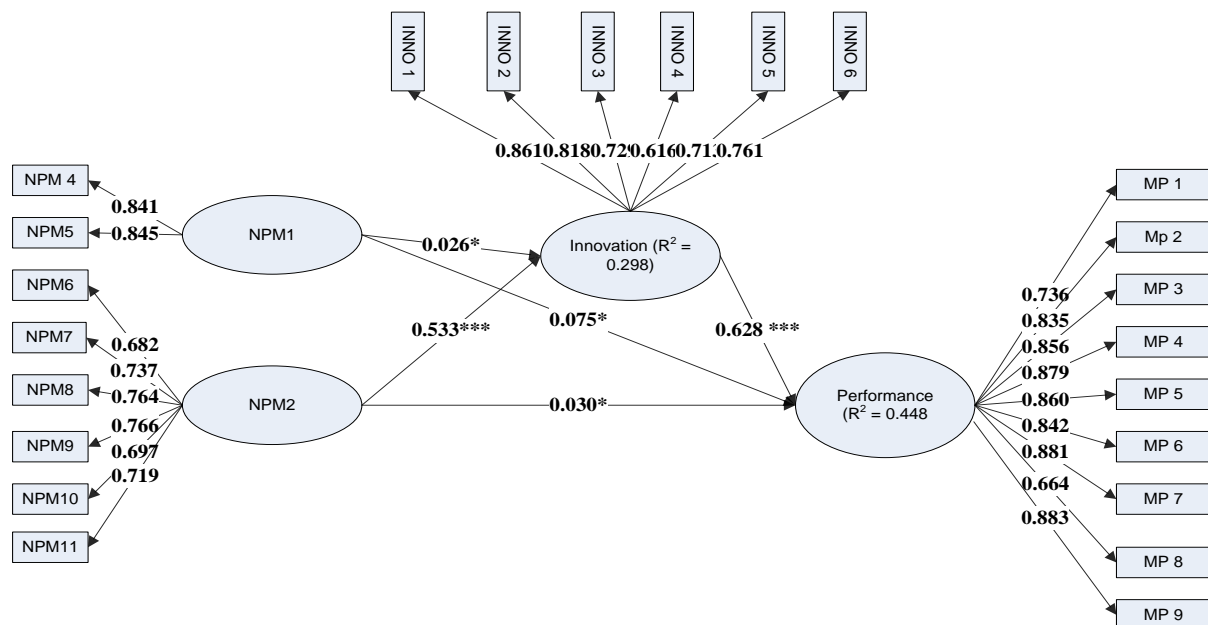
*** Significant at 1% (one-tailed)

**significant at 5% (one-tailed)

*significant at 10% (one-tailed)

Hypothesis 3 (H3) stated that there is a positive relationship between non-financial performance measurement and managerial performance. Table 3 illustrates that products and service has no positive effect on managerial performance ($\beta=0.075$, $t = 0.741$, $p < 0.10$). Additionally, NPM2 also has no a positive association with managerial performance ($\beta=0.030$, $t = 0.256$, $p < 0.10$). Thus, hypothesis 3 is rejected.

Figure 2. A Path Model of The Relationship: significant path coefficients, non-financial performance measurement reliance and managerial performance



*** Significant at 1% (one-tailed)

**significant at 5% (one-tailed)

*significant at 10% (one-tailed)

In path analysis of relationship between non-financial performance measurement and managerial performance directly and indirect through innovation (Alwin & Hauser, 1975; Baron & Kenny, 1986), Figure 2 indicates that innovation significantly mediate fully the relationship between non-financial performance measurement and managerial performance. This is because the indirect effect of

relationship between non-financial performance measurement and managerial performance are strong. While it does not seem that direct relationship between NFPM and managerial exist.

5. Conclusion, Limitation, and Implication

5.1. Discussion and Limitation

Previous studies have established the importance of the use of non-financial performance measures on organizational performance. The implementation on non-financial performance measurement needs also be taken to enhance managerial performance. As been explained by Hopwood (1972) that reliance on accounting performance measurement fail to enhance performance. Hence, based on the deficiencies of reliance on accounting performance measurement as a single indicator, numerous authors suggested that non-financial performance measurement should be implemented to gather broader information about business. Furthermore, the effect of using non-financial performance measurement is not only useful to balance the advantage of financial measures as short-term indicator of progress to long-term goal achievement of companies (Banker et al., 2005; Kaplan & Norton, 1992, 1996a) but is it also appropriate for employees purpose that it has not available in accounting performance measurement (Atkinson, Waterhouse, & Wells, 1997b; Davis & Albright, 2004; Ittner & Larcker, 1998b). In this study, we extent the work of Bisbe & Otley (2004) who investigate the interactive of management control system on performance.

Overall, the aim of this study is to answer the research question: to what extent does non-financial performance measurement influence managerial performance both directly and through innovation? In order to answer this research question, we conducted a survey to managers working in the Indonesian stock exchange-listed companies. Then, from 83 collected data, it was analysed into two step processes: measurement models and structural models.

In the measurement models phase, I testes the reliability and validity of each construct. Individual item reliability which is assessed by using PLS — *cronbach's alpha*— and PLS— *cronbach's alpha and composite reliability (internal consistency reliability)*— indicated that all constructs were above 0.8 meaning that all constructs are satisfactory. Validity was examined into test

two methods: convergent and discriminant validity. Discriminant validity was analyzed using two measures: the Fornell-Larcker measure and cross-loading. All methods of validity tests using PLS demonstrated that all variables were satisfactory.

The next step was assessing the structural model. In this step, we tested all the hypotheses with PLS. The results indicated that all hypotheses were supported. The results demonstrated that non-financial performance measures enable to enhance managerial performance both directly and indirectly through innovation. This finding support Ittner and Larcker 2000 content that non-financial performance measures can boost managerial performance because it can provide evaluation more transparent according to its indicators. Additionally, because non-financial performance measures tend to focus on long-term objectives rather than it counterpart financial performance measures that focus on the short-term goals, managers have more flexible and times to do innovation in regards to provide better performance. Hence, since they have a flexible way and times to do the task as well as have changes to communicate each other, it stimulates creativity among individual, then lead to the improvement the individual performance.

5.2. Limitation and Future Research

No study without limitation. Thus, in this study we found some limitations of the study. Firstly, although the use of non-financial performance measurement tend to increase, the solely use of non-financial measures as a single indicator to evaluate performance is unusual. Based on the advantage of financial measures which has been explained in the previous topic and also the limitations that could be covered by the use of non-financial measures, to gain more beneficial of using performance, combining both financial and non-financial performance measurements is encouraged (Vaivio, 1999). Based on this view, multiple measurements could reduce risk of information that would be lost Ittner and Larcker (Ittner & Larcker, 1998b). Finally with the balance of using multiple performances measures (financial and non-financial) will provide quantitative and qualitative information to achieve a company's objective (Ittner et al., 2003). Further study can examine this effect of individual performance by mediating factor of innovation using multiple performance measurement.

The last limitation of our study is related to sample size. The results of this paper were derived from a survey of 83 respondents. It is believed that small sample enable to reduce of generalizing

findings from questionnaires to a larger group (Berdie & Anderson, 1976). Based on this limitation, it should be carefully to generalise the results to all the Indonesian stock exchange-listed companies.

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