

# NON FINANCIAL INDICATORS IN PERFORMANCE EVALUATION AND ITS IMPACT ON FINANCIAL PERFORMANCE ( CASE STUDY ON OIL AND GAS COMPANY IN RIAU PROVINCE)

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## Abstract

This study examined non financial indicators based on the concept of balanced scorecard to construct performance evaluation perspectives and then to evaluate financial performance of oil and gas company in Riau Province . Structural Equation Modeling (SEM) is applied to verify the cause-and-effect relationships among performance measurement perspectives and then to construct performance relation model. Samples in this study are finance manager , HR, production and information systems. Respondents include team leader, team mananajer and corporate managers. Prior to the first study conducted interviews with key informants to obtain information about performance measurement done . From the SEM analysis, the study finds that the performance perspective of learning and growth has a positive influence on the Internal business process perspective; the internal business process perspective has not influence on the customer perspective (partnership) These results indicate that learning and growth, and internal business perspectives have positive influence on the financial performance but customer perspective (partnership) not influence on financial performance.

**Keywords:** Non financial indicators, Balanced Scorecard, Performance Evaluation, Financial performance

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## 1. INTRODUCTION

The response to the dynamic changes in the environment, especially in conditions of the global crisis led many researchers to propose a performance measurement not only emphasizes the financial measurement. Many studies that use non-financial indicators, this is due to the use of non-financial indicators are believed to be a better indicator of managerial effort in evaluating and evaluate managerial performance (Anderson, & Fornell, 1995; Kaplan & Norton, 2001). Measurement of non-financial indicators for a trusted long-term predictors of performance and are used to help refocus managers on long-term aspects of their actions (Johnson et al., 1987; Kaplan et al., 1996).

Anderson et al (1994.1997); Ittner et. al (1980), Kaplan (2001) found non-financial indicators such as the customer is a key short term measure that determines the long-term performance. They argue that if companies improve customer satisfaction, it will also improve the performace of the company. Several studies have shown that non-financial performance is a cause not effect (Ittner et al, 1998; Johnson, 1987). Profit and other financial measures are effect of non-financial activity, operational measurement of customer satisfaction, internal processes, innovation, and improvement activity is believed to be determinant of the future financial performance (Eccless, 1991; Kaplan, 1996). Kaplan and Norton (1992) and Banker, Potter, and Srinivasan (2000) stated that non-financial measurements are a better indicator of financial performance measurement in predicting the future than the measurement financially.

Some researchers have reported the use of non-financial measures to evaluate the organization's performance in recent years (Ittner & Larcker, 1998; Ittner, Larcker, and Rajan, 1997; Kaplan & Norton, 1992. Etc.). The authors state that in the past a high emphasis on traditional performance such as ROI or net earnings bringing attention to the non-financial factors such as market share, customer satisfaction, efficiency and productivity, product quality, and employee satisfaction. Researchers also said non-financial measures can help managers to recognize the changes in the business environment, determine and assess progress toward business objectives, and accomplishments toward achieving stated goals (Kaplan & Norton, 1996).

The main considerations are proposed for the use of nonfinancial performance measurement is that this measure is a better indicator for performance financial the future than accounting measures, and they are valuable in evaluating and motivating managerial performance (Ittner & Larcker, 1998). Many companies believe the measurement of performance using financial or accounting-based measures have many limitations inherent in the financial measures are more focused on short-term measures (Ittner & Larcker, 1997; Kaplan et al, 2001).

Analysis reveals that nonfinancial measures customer satisfaction affect future financial performance, and financial and nonfinancial performance improved following the implementation of the incentive plan that includes nonfinancial performance measures. Traditionally, companies use financial measurements and rewards for managerial performance using financial measures such as earnings, ROI, or the unit cost (Eccles 1991).

Study shows that nonfinancial measure is a leading indicator of economic performance (Wraight, 2008). Non financial measure is a potential source of information on cash flow in the future. Banker (2000) found an association between customer satisfaction to financial performance with a time lag of 6 months. Meanwhile, Nagar and Rajan (2001) examine the quality measure in manufacturing companies and found that changes in measurements reflect changes in revenue. Nagar and Rajan menenumukan that the use of non-useful financial measure because it provides long-term performance infomasi that are not described in the short-term financial measures.

Until now, few studies on the relationship between measurements of nonfinancial and financial performance (Banker, Potter, and Srinivasan, 2000). Of the few empirical studies conducted showed mixed results (Ittner and Larcker 1998b, 218). Furthermore, a greater emphasis on nonfinancial measures used in the internal workings of the measurement system (Kaplan and Norton 1996) and the company. There is almost no evidence of the impact of nonfinancial performance evaluation and incentive compensation (Ittner and Larcker 1998b).

This study aimed to examine the effect of non-financial performance measures to increase financial performance. Non-financial performance indicators in this study uses indicators developed from non-financial indicators of performance of the Balanced Scorecard (Kaplan & Norton, 1998). The research was conducted by the research Wu and Tsou (2011) which examined the relationship between non-financial perspectives of balanced scorecard and its effect on performance Finansia. Wu and Tsou research done on Travel Agencies in Taiwan. The results of Wu and Tsou (2011) suggests that learning and growth has a positive influence on the internal process perspective, the internal process perspective has a positive influence on the customer's perspective and the customer perspective has a positive influence on the financial perspective. These results show that all non-financial performance perspectives have a positive influence on the financial performance of

The research was carried out on oil and gas industry in the province of Riau. Oil and Gas company has different characteristics with another company that allows using different performance measures. The research was conducted in two stages, the first stage with the qualitative study by conducting interviews with several informants dept to determine indicators of performance measurement used by the company and the second stage questionnaire survey

and data processing to see the relationship between variables. In Riau province petroleum exploration and production by some companies. As a large oil and gas industry requires skilled and skilled employees as well as modern equipment needed to run the operation. Besides crude oil processing issued a fairly high cost. Calculating the exact cost for the use of assets in the processing must be exact and the efficiency factor is needed in the processing in order to generate profit. Therefore, appropriate methods are needed to evaluate the performance so as to improve the financial performance of the company.

Problem statement in this research are:

1. Is the learning and growth perspective has a significant influence positively to the internal process perspective.
2. Is the internal process perspective has significant influence and positive influence on the customer's perspective.
3. Is the customer perspective has a significant and positive impact on the financial perspective.
4. Is the internal process perspective has a significant and positive effect on the financial perspective.
5. Is the performance of the learning and growth perspective has a significant and positive influence on the financial perspective.

## **2. METHOD**

### **2.1. Population and Sample**

This research is a case study on the oil and gas industry in the province of Riau. The oil and gas used in the study is the upstream industry which has activities ranging from exploration to oil lifting. Primary elections in the industry is based on several reasons, namely the importance of oil and gas company performance is accurately measured and what factors affect its financial performance. This is due to the oil and gas company has a production-sharing contracts (production sharing contract) with the government. Calculation of costs and revenue, and the factors that affect the cost and revenue affect state and local revenues. The sample in this study is related managers and find that performance measurement is used which includes the finance manager, production manager and operations manager, general manager or manager setingkatnya.

Based on data obtained from BP Migas, the current oil and gas companies operating in Riau province under BP Migas BP MIGAS (Badan Pelaksana Kegiatan Usaha Hulu Minyak dan Gas), company called PSC (Production Sharing Contract Cooperation) is:

1. PT. Chevron Pacific Indonesia
2. PT. BOB-Bumi Siak Pusako-Pertamina Hulu
3. PT. Kondur Petroleum
4. PT. Kalila (Bentu-Korinci Baru)
5. PT. Sumatera Persada Energi
6. PT. Sarana Pembangunan Riau Langgak

### **2.2. Data Collection Methods**

Data was collected through survey questionnaires sent to the team leader, team manager and the manager under the department of finance, production, human resources, information

systems or related. Kuesioner first sent to BP Migas that manages oil and gas company that is in the province of Riau, after which BP Migas sent a letter to the company's research on oil and gas. After getting a letter from BP Migas researchers go directly to the field. The study was conducted in two stages: qualitative and quantitative. Qualitative research conducted in-depth interviews (depth interviews) to obtain performance measurement used by oil and gas companies. The second stage of the disseminate the questionnaire to the respondent. The questionnaire is based on the first phase of qualitative research information. Questionnaires completed mailed back to the researchers at the agreed time.

## 2.3 Definition and Measurement of Variables

### Customer Perspective

On the oil companies put more emphasis on partnership, which measures the timeliness of completion of production. Oil and gas companies are government partners who completed the work under the contract of employment. Completion of the work at the agreed time is a measure of the partnership. To measure the partnership consists of two questions that asked achieving the agreed production and timeliness of completing the production target. Questions measured with 5-point Likert scale, namely the 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = often, 5 = Very often

### Internal Business Perspective

Measuring the rate of failure of production, production cycle time, the level of security, maintenance and innovation. Questions measured with 5-point Likert scale 1 = Never (TP), 2 = Rarely (J), 3 = sometimes KK), 4 = often (S) 5 = very often (SS).

### Perspectif Learning and growth

Using measurements of learning and growth as measured by indicators of staff skills and competence, employee satisfaction, information systems, and technology. Questions measured with 5-point Likert scale where 1 = which figures Never (TP), 2 = Rarely (J), 3 = sometimes KK), 4 = often (S) 5 = very often (SS).

### Financial Perspective

Financial measurements used in this study refers to research done by the use of revenue, cash flow, total production, total cost per barrel and production. Questions measured with 5-point Likert scale where 1 = which figures Never (TP), 2 = Rarely (J), 3 = sometimes KK), 4 = often (S) 5 = very often (SS).

## 2.4. Method of Data Analysis

To answer the hypothesis was tested by using partial least-squares (PLS). The use of PLS is suitable for predictive and construct theories and samples required is relatively small, at least 10 times the item most complex constructs (Ghozali, 2006). Another advantage of using PLS is PLS can estimate the size of the model on the validity and reliability, as well as the use of indicators of latent constructs. PLS, yielding the parameters of the model struktural that test the strength of the relationship dihipotesiskan. Tests using the PLS method basically consists of two kinds of test, the measurement model (outer model) and the structural model (inner model).

## 3. DISCUSSION

This study establishes performance-evaluation indicators and relation model for oil and gas industries using the balanced scorecard concept. We first conduct a qualitative research by in-depth interview and review previous articles to design measurement variables. Next, we develop effective performance-evaluation indicators through multi-stage confirmation. Finally, this study establishes relation model and evidences the cause-and-effect relationship among the performance-evaluation perspectives.

Though some research had developed performance-evaluation indicators for oil and gas industry however our study point out a more detailed scale-items and has divided indicator's categories effectively focus on oil and gas industry. The study's results have contributions on both enterprises as well as academic.

From the results obtained interview performance indicators used by oil and gas companies consisting of: 5 indicators to measure financial performance, two indicators to measure the customer perspective, 5 internal business indicators to measure and 4 indicators to measure learning and growth.

### Outer Model Testing Results convergent validity

Convergent validity of the correlation seen between the item score to construct a score that is calculated by using PLS. Inter-item correlation results can be seen from the table crossloading as follows:

Table 3.1  
Cross loading

	Part	Intern	Learning	Finc
F1				0.914
F2				0.951
F3				0.942
F4				0.88
F5				0.861
Internal2		0.726		
Internal3		0.717		
Internal4		0.789		
Internal5		0.611		
Learning1			0.897	
Learning2			0.755	
Learning3			0.854	
Learning4			0.79	
Part1	0.753			
Part2	0.928			

Source: Results of the data analysis with PLS 2012

From the table above shows that the value of cross loading between items showed scores > 0.6, which means every item valid question (Chin, 1998 in Ghozali 2006).

### Discriminant Validity

Discriminant validity by comparing the value of the square root of average variance extracted (AVE) of each construct with the correlations between the construct with other constructs in the model. If the value of the root of the AVE each construct was greater than the value of the correlation between the construct with other constructs in the model, it is said to have a value of either discriminant validity (Fornell and Lacker, 1981 in Ghozali 2006). The following table shows the value of AVE and square root of AVE :

Table 3.2  
Average variance extracted AVE and square root of AVE

	Average variance extracted (AVE)	square root of average variance extracted (AVE)
Part	0.714	0.84
Intern	0.509	0.71
Learning	0.682	0.82
Finc	0.829	0.91

Source: Results of the data analysis with PLS 2012

From the table above shows the AVE has a value greater than 0.5, while the roots of the AVE has a value greater than 0.7. Correlations between constructs can be seen in the following table:

Table 3.3  
Correlation between of construct

	Part	Intern	Learning	Finc
Part	1			
Intern	0.177	1		
Learning	0.297	0.37	1	
Finc	0.204	0.592	0.595	1

Source: Results of the data analysis with PLS 201212

From table 4 above can be seen the square root of average variance extracted for constructs partnership greater than 0.84 correlation and internal partnership for 0177, partnership and learning correlations for 0297 and 0204 and financial partnership. Square root of average variance extracted intern at 0.71 greater than the correlation of internal and learning of 0.37, internal and internal finance and partnership 0.592 and 0.177. square root of average variance extracted learning is greater than 0.82 correlation learning and partnership 0.297 and 0.595 the correlation learning, and finance. square root of average variance extracted is greater than 0.91 for correlations finance and partnership for 0.204, finance and internal correlation for 0.592 and 0.595 correlations finance and learning. It can be concluded that the discriminant validity are met.

### Composite Reliability

The value of a construct is said to give a reliable if composite reliability > 0.70 (Ghozali, 2006). Reliability test results are presented in table 6

Table 3.4  
Composite reliability

	Composite Reliability
Part	0.832
Intern	0.805
Learning	0.895
Finc	0.96

Source: Results of the data analysis with PLS 2012

The test results showed that the composite reliability values greater than 0.7 indicating that all constructs or variables of this study has been demonstrated as a measure of the fit, it means that all the question items used to measure each construct is reliable

### Testing Structural Model (Inner Model)

Testing structural inner model or models made to look at the relationship between the variables, values and R-square significance of the research model. Structural models were evaluated using R-square for the dependent variable, the Stone-Geisser Q-square test for predictive relevance and the t test and the significance of the path coefficients of the structural parameters. Table 5 shows the R-square value of 0.031 and the partnership construct construct internal business R Square of 0.137 and finance 0514. The higher the R-square value, the greater the ability of independent variables to explain the dependent variable so that the better the structural equation.

Table 3.5  
R square

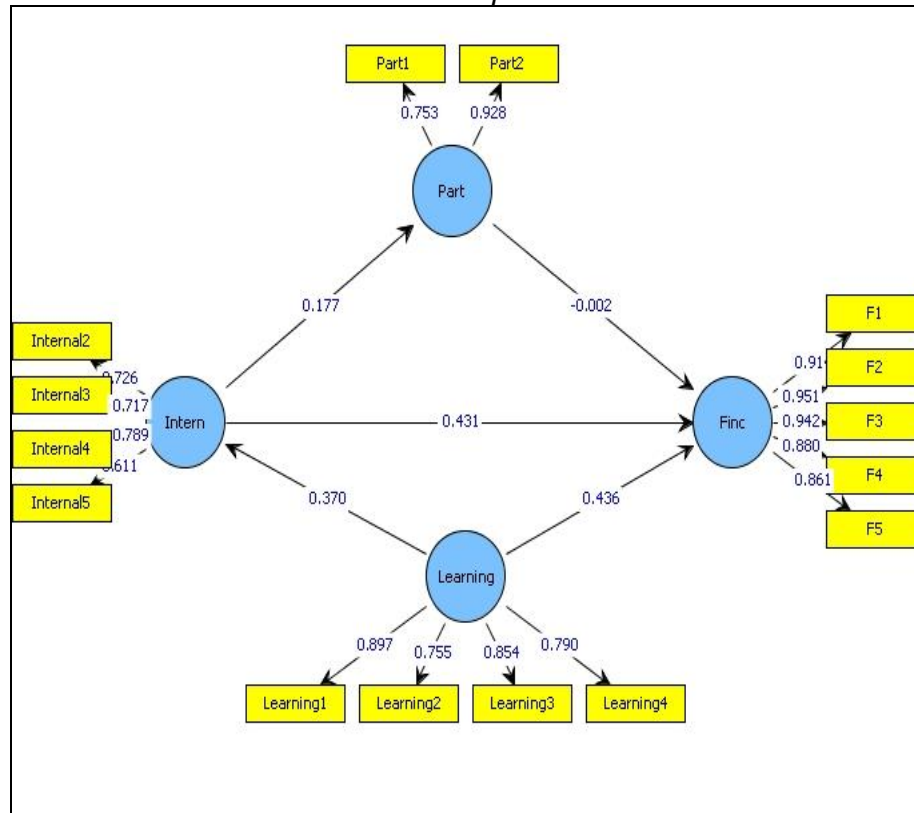
	R-square
Part	0.031
Intern	0.137
Finc	0.514

Source: Results of the data analysis with PLS 2012

### Structural Equation Model (SEM)

The main method of analysis in this study conducted by the Structural Equation Model (SEM). Testing is done with the help of the program SmartPLS. The test results are obtained as shown in Figure 2

Figure 2  
Full Struktural Equation Model



Source: Results of the data analysis with PLS 2012

### Hypothesis Testing Results

Hypothesis testing, can be seen from the value of t-statistics. Significance of the estimated parameters provide very useful information about the relationship between the variables of the study. Limits to reject and accept the hypothesis is  $\pm 1.645$  (one-tailed) and  $\pm 1.960$  significant at  $p < 0.05$  (two-tailed). Table 3.6 illustrates the output estimates for structural model testing

Table 3.6  
T Statistic

	original sample estimate	mean of subsamples	Standard deviation	T-Statistic
Intern -> Part	0.177	0.184	0.241	0.733
Learning -> Intern	0.37	0.413	0.13	2.836
Part -> Finc	-0.002	0.016	0.117	0.017
Intern -> Finc	0.431	0.443	0.117	3.688
Learning -> Finc	0.436	0.414	0.112	3.9

Source: Results of the data analysis with PLS 2012

### Results of hypothesis testing



The result of hypothesis 1 shows positive influence on learning and growth relationships with internal business demonstrates the value of t statistic is above the value of  $2836 \pm 1645$  at the critical point  $\alpha$  of 5% (one-tailed), which means that hypothesis 1 can be proved. The results of hypothesis 2 show that internal business process perspective influences to the partnership demonstrates the value of t statistic is below the value of  $0733 \pm 1645$  at the critical point  $\alpha$  of 5% (one-tailed), which means that hypothesis 2 is rejected. Results of hypothesis 3 testing can be seen from table 3.6 the perspective of the customer influences financial performance demonstrates the value of t statistic 0.07 is below the critical value of  $\pm 1.645$  (one-tailed), which tells us the hypothesis is rejected. 4 shows the results of hypothesis testing positive influence on the financial performance of internal business demonstrates the value of t statistic is above the value of  $3688 \pm 1645$  at the critical point  $\alpha$  of 5% (one-tailed), which means that hypothesis 1 can be proved. 5 shows the results of hypothesis testing positive influence on the perspective of learning relationship with financial performance demonstrates the value of 3.9 t statistic is above the critical point value of  $1645 \pm 5\%$  at  $\alpha$  (1-tailed), which means that hypothesis 1 can be proved.

These research results evidence the relation between non-financial and financial perspectives performance as proposed by Ittner and Larcker, "Kaplan and Norton." The test results support previous studies Wu and Hung (2007) Wu and Tsou (2011) also proved that the learning and growth perspective p relate to internal processes perspective. Except for hypotheses 2 and 3. The test results can not prove that the internal business perspective related to the customer perspective and customer perspective (partnership) has no effect on the financial perspective. This is due to the company's oil and gas customer perspective is not a major concern by the company. This is due to the company's customers are government carried out in a contract. All oil and gas assets of the company are owned by the government, companies that operate only perform operations in accordance with the contract, so no competition for customers.

#### 4.CONCLUSSION

The study concluded several things:

1. Learning and growth is positively associated with internal business.
2. internal business process not related to partnership
3. Partnership is not related to financial performance.
4. Internal business process positively related to financial performance
5. Learning and growth is positively related to financial performance

Limitations and Implications

Limitation

1. The study was only done on the oil and gas company with a low number of samples.
2. R-square is low which indicates there are many other variables that affect the dependent

variable.

3. Do not pay attention to time lag of financial performance measurement

Implication

1. Subsequent research can expand the sample and the object of research
2. Future studies may use non-financial performance measures such as CSR, TQM, etc.
3. Taking into account the time lag of financial performance as a result of using non-financial performance can be seen next period.

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