# Ratio Analysis Approach on Quality of Employees

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**Abstract**

*Ratio analyses have certainly become the basic stepping-stone prior to advancing into any more-complex discussions. It is also true for the studies on quality of employees. Nonetheless, minimal attention may have been placed on the connection on the ratio analysis and the quality of employees.*

*Relying on the knowledge-based theory of the firm, this paper studies the connection between the quality of employees and ratio analysis. Employees have become increasingly important to contribute for future market dynamics.*

*Various literature and studies have been undertaken surrounding the theory of the firm, from its original stance toward its development, and its implications to managerial perspectives in supply chain, consumer behaviors, and customer satisfaction. The study focuses on the quality of employees, which is derived from employees' skills and abilities, and the ratio analyses, which rely on growth ratios, such as; sales growth, net profit growth, and cost reduction. It is expected that the growth ratios for firms advances in accordance with the improvement on the quality of employees.*

*This study uses a cluster probability-based sampling method to study the characteristics of small enterprises in selected locations. Aside from the on interviews and field observations, statistical software packages are used to provide the relational coefficients. Primary and secondary sources are obtained in service industries in Jakarta and Bandung. It is expected that this study can reveal the relational significance between quality of employees and ratio analysis.*

Keywords: employee, quality, ratio, growth, performance.

## I. INTRODUCTION

Management of human resources has become the central focus in management practices for years. The reason is relatively simple since the firm's human resources play a fundamental role in ensuring firm's daily operational activities, and thus, firm's viability into years to come. Using the perspective on the knowledge-based theory of the firm (Anantadjaya, et al, 2010; Anantadjaya, 2009b), this paper attempts to perform ratio analysis on the quality of human resources inside organizations.

Human resources represent the "breath and blood" of organizations. Many firms have seen substantial growth given the quality of human resources. Ironically, it is also undeniable that large corporations have seen substantial slide, including the required step on filing for bankruptcy, regardless of the superb quality of human resources. The recent global crises have certainly shown such drastic slides. Those incidents are facts in the marketplaces around the world. It suggests that human resources contribute to the overall organizational performance, and value creation. This is evidence that the human resources has been increasingly seen as the important resource[1] for organizations in evaluating uncertainties, market opportunities, and capitalizing on firm's shortcomings.

## II. THEORETICAL REFERENCES

### II.1. DEFINITION AND SCOPE OF INTANGIBLE ASSETS

The word "intangible" basically refers to the inability of being defined or determined with certainty. Thus, "intangible assets" refer to the undefined, undetermined, or non-physical objects with potential to generate future profits (Anantadjaya, 2009a; 2009b; Colombo and Grilli, 2005). Unlike products, which are usually considered tangible, intangible assets lack of formation and shape, which makes it relatively impossible for anybody to grab and hold. Services certainly fall under this category.

Looking from the managerial practices, intangible assets, or known in this field of studies as intellectual capital, can be divided into four different forms as the organizational competitive base (Anantadjaya, 2009a; 2009b; Stewart, 2005);

1. **Human Capital**, or referred to herein as "HC", concerns with skills, talents, capabilities, and expertise to perform any types of activities in any organizations. This appears to be the main driving force on organizational competitive base since all other types of capitals required the presence of human resources, and thus, human capital as well, prior to the actual start-up and development.

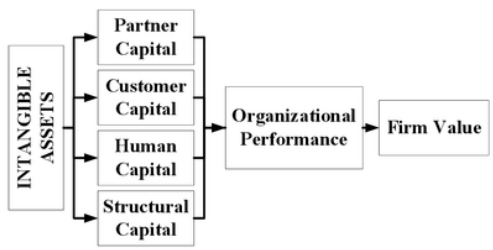


Figure 1: Components of Intangible Assets
Source: Anantadjaya, 2009

2. **Structural Capital**, or referred to herein as "SC", concerns with systems, procedures, policies, and rules in any organizations, which allow the effective utilization of HC in creating the organization-wide information systems as well as managerial competences. SC also includes shared vision and mission, availability of qualified leaders at all levels to mobilize the organizations toward strategies, alignment of goals and incentives with the strategy at all organizational level, and the sharing of knowledge and staff assets with strategic potential.

3. **Customer Capital**, or referred to herein as "CC", makes up of customer relationships in any organizations, which allow the effective utilization of HC in creating the necessary customers-own-version of SC[2], in the form of database to establish the customer relationship management, while recognizing to whom products and services are sold to.

4. **Partner Capital**, refers to herein as "PC", consists of other individuals and/or other institutions with whom a particular organization is establishing cooperative agreements with. It means that organizations should have strategic partners in dealing with operational activities while maintaining cutting-edge position in the marketplaces (Anantadjaya, 2009b; Colombo and Grilli, 2005). This type of resources denotes

[1] Edith Penrose (Anantadjaya, 2009b) had initially researched the complexities of the internal management processes and practices, which are influenced the organization-wide behaviors. The organization-wide behaviors lead firms into dynamic interactions with other firms, while attempting to improve the creative thinking of management. Acquiring additional resources from external sources may be one sign of outcome from the dynamic interaction and creative thinking of management. Thus, firms are no longer constrained to only a bunch of resources on-hand.

[2] This can take various forms, such as; a complete database to establish customer relationship management, customer research, web sites, and e-commerce, perhaps.

strategic value-creation for organizations.

The above explanation provides evident that there has been a major shift in the organizational use on revenue building. Organization used to put focus on the more liquid assets, which can be turned into cash within a relatively short term. Today, more organizations focus on building long-term assets as a part of the firm's strategy in winning the market.

The illustration shows the steps to transform intangible assets into cash via direct support of the firm's strategy[3], via the growth of revenues and/or cost reduction, due to increased productivity. It is evident that the ability and competencies of human resources serve as the driver of firm's future cash inflows, though the impact may well be rather long-term. The actual use of property, plant and equipment, and the efficient use of space in the warehouses portray the need of sophisticated intelligence from the firm's personnel to really calculate the available space. Operating computer software to assist with the accurate measurements is also another factor that requires sufficiently high level of personnel's competencies. A computer unit may be seen as a mere machine to do data entry. However, for more experienced staffs, who may have master the use of a computer, may well be using the computer produce many other outputs.

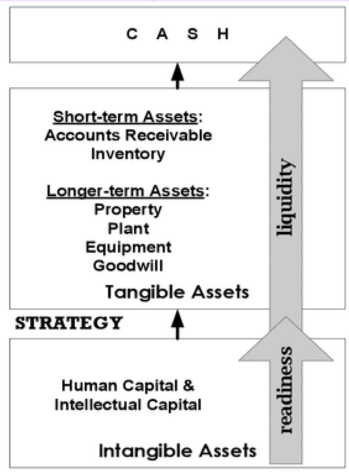


Figure 2: Transformation of Human Capital
Source: Kaplan and Norton, 2004

Hence, it is evident that the components[4] of intangible assets should be in-place to support the ultimate value creation for firms. Lacking on any of the components of intangible assets may diminish organizational competitiveness. Hence, strengthening the components of intangible assets will provide significant boosts for the organizational performance into years to come. This is simply due to the difficulties of copying or duplicating those intangible assets by competitors (Morrison, 1996).

The illustration on the importance of human resources, by Morrison (1996), indicates that many aspects within a firm are considered to be easily followed, and copied by competitors. Such aspects will provide solid grasp in maintaining existence in marketplaces. High-technologies, for example, can sure be instantly copied by competitors, by simply purchasing the available high-tech assets in the market. Friendly-facilities with handicap access and the updated safety measures can also be copied by competitors easily. In fact, investments toward firms' human resources will create huge barriers for competitors as such investments have potentials to enhance the firms' value creation

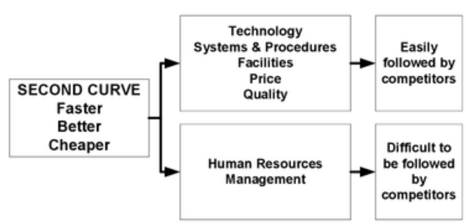


Figure 3: The Importance of Human Capital
Source: Morrison, 1996

[3] At least, 2 (two) firm's strategies are worth noted, which are; revenue growth and cost reduction. Such strategies can be achieved via a higher level of productivity. A higher level of productivity is the result of higher human resources capabilities. In this paper, such human resources capabilities are referred to as human capital, or intellectual capital (Kaplan and Norton, 2004).

[4] According to Anantadjaya (2009a; 2009b), there are 4 (four) components, which make-up the firm's intangible assets, whereas Kaplan and Norton (2004) indicate 3 (three) components.

(Anantadjaya, 2006; 2007a; 2007b; Brahmbhatt and Hu, 2007; Colombo and Grilli, 2005; Florackis, 2005; Richieri, et al, 2008).

The illustrations show evidences that the role of human resources directs future success (Colombo and Grilli, 2005; Kaplan and Norton, 2004; Morrison, 1996). An increased level of employees' skills has become the major importance in many economic activities (Anantadjaya, 2009b). It appears that the more firms try to enhance the human resources quality, the more successful the firms become. This is simply due to the improvement of existing skills, or attainment of new skills to perform existing tasks better or to perform new tasks. This contributes to superior performance (Anantadjaya, 2009b). In short, objectives in human capital must be aligned with objectives of internal processes, and integrated with each other. It means that the human capital should build upon the capabilities created in other intangible and tangible assets, rather than creating independent capabilities with no synergies between human capital and other components.

## III.2. MEASURING HUMAN CAPITAL

To measure human resources of organizations is relatively complex because it is not just calculating the total numbers of human resources in organizations. Most organizations record the amount of expenses related to the development of human resources, and its relation to the firm's bottom-line. Although measuring the expenses on human resources relative to the firms' bottom-line may have become the common practices, it fails to provide the real picture on the firm's bottom-line. Measuring human capital should be evaluated on how well the alignment and integration of human capital to the firm's strategy (Anantadjaya, 2009b; Colombo and Grilli, 2005; Florackis, 2005; Kaplan and Norton, 2004; Richieri, et al, 2008; Sangkala, 2006; Stewart, 2005), but not by how much the firm has spent to develop those human resources (Kaplan and Norton, 2004). If the improvements of human capital were aligned and integrated with the firm's strategy, it would have been able to create much greater value. Similarly, if the development of human capital were not aligned and integrated with the firm's strategy, it would have been able to create value, regardless of the total costs on training and development programs that the firm has engaged in. Popular measurements include the following, but not limited to; productivity, total quality management ("TQM"), market value, accounting value ratio, Tobin's Q ratio, real options, intangibles asset monitor, knowledge capital value, enterprise value added ("EVA"), return on capital employed [5] ("ROCE"), return on equity[6] ("ROE"), return on assets[7] ("ROA"), return on sales[8] ("ROS"), return on investment[9] ("ROI"), inventory turnover[10] ("ITO"), human resource costing and accounting, and many others (Richieri, et al, 2008).

Noting the true value of human capital in firms is troublesome. This is the main reason that all accounting records are vital to show the values with respect to human capital activities. Though productivity is the common measurement on organizational human resources, the comparison between inputs and outputs is helpful to only note the workers' level of productivity. This is to say that less inputs with higher outputs indicates a higher level of productivity. This is certainly what is expected by most firms.

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[5] ROCE equals to EBIT/(TA-CL), or EBIT/(FA+WC); where "TA" refers to total assets, "CL" refers to current liabilities, "FA" refers to fixed assets, and "WC" refers to working capital.

[6] ROE equals to NI/TE; where "NI" refers to net income, and "TE" refers to total equity.

[7] ROA equals to NI/TA; where "NI" refers to net income, and "TA" refers to total assets.

[8] ROS equals to NI/TS; where "NI" refers to net income, and "TS" refers to total sales.

[9] ROI equals to NI/TI; where "NI" refers to net income, and "TI" refers to total investment.

[10] ITO equals to COGS/Average Inventory; where "COGS" refers to cost of goods sold, and "Average Inventory" refers to the average between beginning and ending inventory.

Though the previous measurements appear decent, this paper aims to gauge the quality of employees based only on the perspective of growth ratio, namely; sales growth, net profit growth, and cost reduction. Since small/micro businesses are the focus in this study, financial measurements from such organizations are represented in daily average over a minimum of 6-month period, up to July 2010. The main reason for this is simply due to the simplicity of organizations' financial records. Complete financial records to reflect the accurate accounting principles are rarely incorporated. Nevertheless, it is expected that those financial data are sufficient to address the growth ratio of the quality of human resources.

## III. LIMITATION

Few limitations in this paper include the following;

1. this paper focuses only on the human capital aspect of the intangible assets. In this study, the term "human capital" represents human resources, or employees, in organizations.
2. This paper focuses only on the growth ratio, particularly; sales growth, net profit growth, and cost reduction.
3. This paper focuses on small/micro businesses, whose financial records are relatively basic, and do not necessarily follow the prevailing accounting standards.
4. This paper focuses only on 2 cities in Indonesia; Jakarta and Bandung.
5. This paper focuses only on a handful of respondents, based on a probability cluster sampling method.

## IV. RESEARCH MODEL

The framework of thinking in this study is illustrated in the diagram.

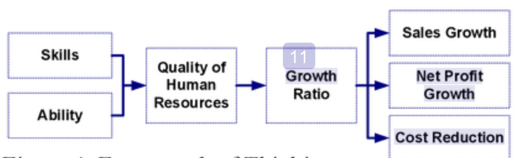


Figure 4: Framework of Thinking

The diagram illustrates that the quality of human resources are crucial toward enhancement of the organizational growth ratio. It is expected that as the quality of human resources improves, the organizational growth ratio increases.

## V. RESEARCH METHOD

A cluster sampling methods is used in this study to note the characteristics of those small/micro businesses in certain locations and particular industries. Research is conducted by gathering data from primary and secondary sources in service industries in Jakarta and Bandung. Variables chosen in this study are; skills, ability, sales growth, net profit growth, and cost reduction.

## VI. RESULT AND DISCUSSION

### VI.1. OVERVIEW OF STUDY

The previous studies by Yogaswara, et al (2005; 2006), with the original sample of only 50 (fifty) respondents, are used. Their organizations are young, and operate in various service industries in Jakarta and Bandung; bakery/cakes, hair-dressers/barbershops, laundry/dry cleaning, delivery/courier services, copy centers, computer/internet rentals, cellular phone vouchers, garment, textile, and tutorial centers for computer and language training. For the purpose of this study, total respondents are added to broaden the coverage.

Out of a total of 150 additional questionnaires are distributed, only 118 questionnaires are usable, mainly due to lack of financial information and misunderstanding on various questions, which result in incomplete responses. This represents 78.67% rate of response.

With these 118 additional questionnaires, the total usable questionnaires in this study are 168 respondents. There were no significant differences in the demographic or responses regardless of the city. Thus, despite of the specificity of the business forms of those respondents, as mentioned above, their responses are combined.

The summary of respondents' characteristics is as follows; (1) about 62% of respondents were male; about 52% of respondents were at least 36 years old; (2) about 57% of respondents live in Jakarta; (3) about 43% of respondents open-up hair-dresser/barbershop establishments, 22% in learning centers, 16% in copy centers, 8% in bakery/cakes, and the remaining 11% in other business forms; (4) about 40% of respondents are staff; (5) about 52% of respondents claimed that their individual monthly expenses are at least Rp. 3 million.

The following is the summary of respondents' financial measurements; (1) the respondents' daily average sales are about Rp. 261,000; (2) the respondents' daily average operating expenses are about Rp. 88,000; (3) the respondents' monthly average net income is about Rp. 1.5 million; (4) the respondents' monthly average sales growth rate is about 1.54%; (5) the respondents' monthly average net income growth is about 0.56%; and (6) the respondents' monthly average cost reduction is about -55.95%;

### VI.2. Design and Procedures of Study

A total of 200 respondents[11] were distributed a set of questions concerning their personal information, and other financial measures, as mentioned above. The case processing summary table indicates that all 168 data are considered valid. These variables are measured using the 5-Likert's scale. The available data are verified using a reliability statistic measurement, which indicates a convincing 83% reliable. These indicate that the data are sufficiently reliable for further processing. Standardized Z-scores are used in further analysis due to large variations in the data set.

Table 1: Case Processing Summary
Source: SPSS student version

| | | N | % |
|---|---|---|---|
| Cases | Valid | 168 | **100.0** |
| | Excluded[a] | 0 | .0 |
| | Total | 168 | 100.0 |

[a] Listwise deletion based on all variables in the procedure.

Table 2: Reliability Statistics
Source: SPSS student version

| **Reliability Statistics** | | |
|---|---|---|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .233 | **.843** | 9 |

From the following table, it is apparent that the values of ratio are not showing a relatively high correlation. In fact, there are 2 variables whose correlations are less than the minimum standard value, and 1 variable with a marginal "passing rate" of the suggested minimum value of 0.250. Nonetheless, since those values reflect the true conditions of the small/micro businesses, these two variables are maintained for further analysis. One prominent reason of doing so is simply due to the fact that those small/micro businesses do not follow the practice of accounting standards in recording their transactions. Their records are mostly based on daily transactions of either cash-in or cash-out. On the other side of the story, however, the measurements on quality of employees show satisfactory correlations.

Referring to the "Total-item Statistic" table, generally, in relation to the quality of employees, the correlation table provides few notable points;

1. Indicator "training" influences 72% quality of employees. This is to say that mostly the respondents agree that training influences quality of employees. However, this may be easier said than done. During a much deeper informal interview with the respondents, it

[11] 50 respondents from the first study, and an additional of 150 respondents from the second study.

was revealed that training may not be feasible for small/micro businesses since any kinds of training requires quite a large sum of financial constraints.

Table 3: Total-item Statistics
Source: SPSS student version, modified

| | **Scale Mean if Item Deleted** | **Scale Variance if Item Deleted** | **Corrected Item-Total Correlation** | **Squared Multiple Correlation** | **Cronbach's Alpha if Item Deleted** | **correlation ≥ 0.250?** |
|---|---|---|---|---|---|---|
| ZT | 0.0060 | 60.697 | 0.720 | 0.754 | 0.807 | Yes |
| ZB | 0.0067 | 59.140 | 0.830 | 0.851 | 0.800 | Yes |
| ZREC | 0.0060 | 59.171 | 0.828 | 0.841 | 0.800 | Yes |
| ZED | 0.0065 | 59.864 | 0.779 | 0.811 | 0.803 | Yes |
| ZSAL | 0.0045 | 60.849 | 0.710 | 0.779 | 0.807 | Yes |
| ZPOS | 0.0036 | 62.764 | 0.578 | 0.629 | 0.815 | Yes |
| ZSG | 0.0065 | 73.492 | -0.192 | 0.059 | 0.853 | No |
| ZNIG | 0.0070 | 72.872 | 0.333 | 0.035 | 0.851 | Yes (marginal) |
| ZCR | 0.0064 | 72.492 | -0.234 | 0.181 | 0.850 | No |

2. Indicator "bonus/incentives" influence 83% quality of employees. Similar to the above explanation, most of the respondents agree that the amount of bonus/incentives relate strongly to the quality of employees. As the amount of potential bonus/incentives increases, qualified employees have a tendency to go for the extra miles attempting to receive the maximum amount of bonus/incentives. The majority of small/micro businesses operate their daily activities using this bonus/incentive scheme to lure the employees into performing at their best capacity.

3. Indicator "recognition" influences 83% quality of employees. Most respondents agree that the amount and/or frequency of recognition relate strongly to the quality of employees. This goes both ways. As more recognition is extended to employees, their quality of work increases. Likewise, only top quality employees are likely to receive frequent recognition. The compactness of small/micro businesses provided an excellent opportunity to closely monitor employees.

4. Indicator "education" influences 78% quality of employees. Most respondents agree that the length of education relate strongly to the quality of employees. Nonetheless, the informal interview with practitioners of small/micro businesses, it revealed that though education is certainly important and have the potential to improve the quality of employees, small/micro businesses may decide to overlook the level of one's educational background and search for low-skilled laborers. This is pertinent to the scope of work and responsibilities in small/micro businesses. Small/micro businesses have the tendency to search for people who are simply willing and able to work, instead of their formal academic degrees. This indicator mirrors closely the training indicator mentioned above.

5. Indicator "salary" influences 71% quality of employees. This indicator is similar to that of bonus/incentives above. Most respondents agree that the amount of wage/salary relates strongly to the quality of employees. As qualifications of individuals increase, the amount of potential wages/salaries increases. Hence, the rate of wage/salary portrays the quality of employees. The majority of small/micro businesses operate their daily activities using this wage/salary scheme as a basic portion to the total compensation

package. It is expected that such a scheme would push employees into working harder and diligently. Small/micro businesses seldom use a full salary package without incorporating portions of bonus/incentives.

6. Indicator "position" influences 58% quality of employees. Though position may often be regarded as one of the major indicator for large organizations, positions in small/micro businesses do not necessary represents any significance of one's quality. Often times, positions in small/micro businesses are only a mere formality, to be used only as requirements in business licensing procedures. If there were positions held by other than family members, those individuals are appointed based on seniority, and not based on quality.

7. Indicator "sales growth" influences -19% quality of employees. This indicator fails to provide evidence on the quality of employees. Actually, it is expected as quality of employee increases, small/micro businesses can experience higher sales growth. Unfortunately, financial data from those small/micro businesses did not support the initial expectation. Informal interview with practitioners of small/micro businesses revealed that, based on experience, they believed that they were experiencing sales growth. They were able to see more customers, sold more products/services, have extra money to purchase stocks, including stocking-up more inventory. However, the financial data has failed to conform to such claims. In fact, the financial data revealed that as quality of employee increases, the sales growth slides by 19%.

8. Indicator "net income growth" shows 33% level of influences toward the quality of employees. This result indicates that the possibility of growth in the small/micro businesses' income increases by 33% following an improvement on the quality of employee. The results of the interview sessions indicated that this such an increase in the organizational net income was the contribution of the employee's experience in performing the prediction and management of inventory for the future operation.

9. Indicator "cost reduction" influences -23% quality of employees. Again, in contradictory to the previous indicator, as quality of employee increases, small/micro businesses experience higher cost of production. Interview sessions revealed that as qualified employees flocked into small/micro businesses, the general working requirements and specifications heightens. Examples of the general working requirements and specifications are; more advanced tools and equipment, better/powerful computers, better printers, faster internet access, as well as superior administration systems and filling. Of course, the level of wages and salaries may have been the ultimate driver that cause this cost reduction to be negatively impacted the quality of employees. Undoubtedly, more qualified individuals seek for better compensation packages.

The following shows the research model and the relationship among variables. Although not all values follow the prescribed model fit test, at least this model is able to bring up initial perspective of ratio measurements on quality of employees in small/micro businesses. As shown in the illustration of a structural model, the relationship among variables appears to support the preliminary findings. In terms of "quality of employees", all variables chosen have shown relatively strong and positive correlation. For the "growth ratio", however, net income growth is the only one with a positive correlation whereas sales growth and cost reduction have negative correlations. These indicate that net income is aligned with the quality of employees. Ironically, sales growth and cost reduction are negatively correlated with the quality of employees.

As indicated previously, the negative values for "sales growth" and "cost reduction" are in

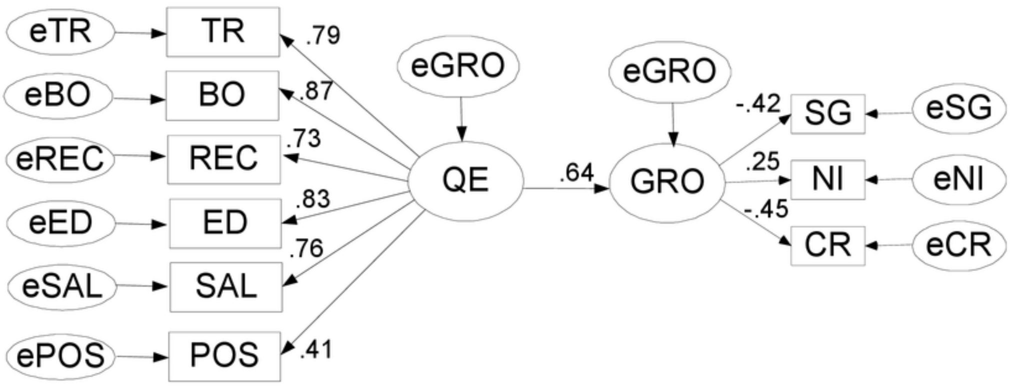


Figure 5: Model Fit
Source: AMOS student version

contradiction with the expectation and the theory. Unfortunately, "sales growth" and "cost reduction" appear to have violated such an expectation. Based on the interview sessions, one possible explanation for this phenomenon is that the required work and scope of responsibilities in small/micro businesses may not require a high quality of employees. This may pose as the biggest drawback on the measurements used. Also, since the small/micro businesses do not have sophisticated financial records to be fitted in the calculations on ratio analysis, this may also be the source of the issue that resulted in such negative relationships.

The following table provides the model fit criteria for the structural model above. As shown, the values are relatively marginal for the model to be considered as best fit. Nonetheless, due to the difficulties in compiling the financial records from the small/micro businesses, this opens doors to the underlying issues in organizational performance, both from the perspective of employees' performance measurements, and organizations' objective performance accomplishments.

Table 4: Model Fit Test
Source: AMOS student version, modified

| ***Model*** | **RMSEA** | **CFI** | **TLI** | **NFI** | **PNFI** |
|---|---|---|---|---|---|
| *Default model* | **0.219** | **0.625** | **0.651** | **0.702** | **0.731** |
| *Saturated model* | | 1.000 | | 1.000 | 0.000 |
| *Independence model* | 0.355 | 0.000 | 0.000 | 0.000 | 0.000 |

## VII. Conclusion and Recommendation

Statistical tests and results above provide evidence that a number of variables are significant in shaping the quality of employees and its relationship with growth ratio. This study can safely conclude that quality of employees statistically impact the growth ratios. Though such results may have to be tested further to apply across the board, particularly into bigger marketplaces, it provides preliminary objectives on inspiring factors to focus on to boost the organizational growth ratios. This is particularly true, at least, for small/micro businesses in Jakarta and Bandung. If such results were assumed to be acceptable across the board, for instance, it is safe to conclude that the creation of the net income growth is just the positive impact of the improvement in quality of employees. However, the improvement in quality of employees impacts negatively to sales growth and cost reduction. Hence, to ensure high performance, organizations must consider the influencing factors mentioned in this study. This includes better financial recording to ease up the process in ratio calculations.

It should be noted, however, that this study contains deficiencies. Future studies may have to concentrate more on larger scope of population, including more small/micro businesses, covering more cities and towns, and attempting to test more measurements on quality of employees, and incorporate more financial ratios. This would enable a model to be applied across the board, at least. Also, additional variables should be incorporated into the study, such as; price level, numbers of years the organization has been in business, the availability of business licenses, external funding, number of family members and non-family members in the organizations, and others. Those suggested variables may eventually enrich the future study on the level of quality of employees.

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