

Suggested Citation:

Anantadjaya, Sam PD (2009), "Measuring Human Resources: A Case Study in Small and Medium Enterprises", *Proceeding, Seminar Nasional Industrial Services 2009, Jurusan Teknik Industri, Universitas Sultan Ageng Tirtayasa, Cilegon, April 29-30, 2009, Banten: Indonesia*, p. III-101 – 114, ISBN # 978-979-19280-0-7, available online at www.ssrn.com

Seminar Nasional Industrial Services 2009
Jurusan Teknik Industri, Universitas Sultan Ageng Tirtayasa,
Cilegon, Banten, Indonesia, April 29-30, 2009

Measuring Human Resources: A Case Study in Small and Medium Enterprises

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Abstrak

Penggunaan dan pengaturan yang efektif terhadap sesuatu yang tidak berwujud, khususnya mengenai sumber daya manusia yang berada di dalam suatu organisasi, telah terbukti memainkan peran yang penting dalam memastikan keberlangsungan hidup organisasi. Perusahaan yang berbasis pengetahuan, yang relatif di dominasi oleh organisasi yang mengedepankan teknologi informasi, termasuk organisasi lainnya yang mengedepankan sumber daya intelektual, atau sumber daya manusianya, sebagai mesin penggerak untuk pencapaian masa depan, telah dapat memberikan pertumbuhan yang pesat, bukan hanya peningkatan pendapatan, tetapi juga peningkatan laba organisasi.

Dengan menggunakan sudut pandang teori organisasi yang berbasis pengetahuan, karya tulis ini berupaya untuk melakukan analisa perhitungan atas sumber daya manusia yang berada di dalam suatu organisasi terhadap kelangsungan hidup organisasi di dalam dunia usaha yang serba tidak pasti. Sumber daya manusia dipandang sebagai faktor penting untuk dapat mengerti masa depan yang dinamis, serta mengurangi kemungkinan kemunduran yang dapat terjadi di dalam suatu organisasi.

Penelitian kualitatif sebelumnya sudah pernah dilakukan mengenai teori organisasi, termasuk dengan perkembangan dari teori organisasi tersebut. Penelitian pendahuluan mengenai supply chain management, perilaku konsumen, dan kepuasan pelanggan, juga sudah pernah dilakukan. Karya tulis ini berupaya untuk mengangkat sejumlah perhitungan atas sumber daya manusia untuk memastikan kinerja organisasi, dan upaya penciptaan nilai tambah bagi organisasi.

Cara cluster sampling digunakan di dalam penelitian ini untuk memperhatikan karakteristik dari usaha kecil dan menengah di berbagai lokasi. Variabel yang dipilih di dalam penelitian ini lebih mengutamakan perhitungan keuangan dan rasio, seperti; penjualan, pengeluaran organisasi, total aktiva, total kewajiban, total modal, total persediaan, pembayaran bunga, pembayaran pajak, nilai pertumbuhan, rasio kewajiban terhadap aktiva, rasio kewajiban terhadap modal, rasio pengembalian modal, rasio pengembalian investasi, rasio pengembalian aktiva yang dipergunakan, rasio pengembalian aktiva umum, rasio pengembalian penjualan, dan rasio perputaran inventory. Variabel tambahan yang digunakan di dalam penelitian ini juga meliputi; perhitungan atas tingkat produktifitas, efektifitas, dan efisiensi. Sebagai tambahan dari analisa kualitatif yang berdasarkan wawancara dan pengamatan di lapangan, perangkat lunak statistik juga digunakan untuk membangun analisa kuantitatif. Penelitian ini menggunakan data primer dan sekunder dari industri jasa di Jakarta dan Bandung. Seperti yang sudah diungkapkan sebelumnya, penelitian ini diharapkan dapat mengangkat sejumlah perhitungan atas sumber daya manusia untuk memastikan kinerja organisasi, dan upaya penciptaan nilai tambah bagi organisasi. Tentunya, perhitungan tersebut diharapkan juga berlaku untuk usaha kecil dan menengah.

Kata Kunci: perhitungan, produktifitas, sumber daya manusia, keuangan, rasio, nilai, kinerja.

Abstract

The effective utilization and management on intangibilities, mainly on the firm's human resources, have proven to play a crucial role in ensuring firm's viability. Knowledge-based firms, which are mostly dominated by information technology firms, including other firms that put forth intellectual capital, or human capital as their business driver toward future

advancement, have seen substantial growth, not only on the revenues, but also on the firm's bottom-line.

Using the perspective of the knowledge-based theory of the firm, this paper attempts to analyze the appropriate measurements on human resources for firm's survivability in today's uncertain business environment. Human resources are seen as increasingly important factors to grasp the future market uncertainties and minimizing the organizations' potential drawbacks.

Preliminary qualitative studies have been undertaken concerning the theory of the firm, including its development, as well as on supply chain management, consumer behavior, and customer satisfaction. This paper attempts to bring out the significance of measurements on the pool of human resources in trying to ensure organizational performance, and the creation of firm's value.

A cluster sampling method is incorporated in this study to note the characteristics of small and medium enterprises in certain locations. Variables chosen in this study are mainly covered the traditional financial measurements and ratios, such as; sales, expenses, total assets, total liabilities, total equity, total inventory, interest expense, tax expense, growth rate, debt-to-asset, debt-to-equity, return on equity, return on investment, return on capital employed, return on assets, return on sales, and inventory turnover. Additional variables used in this study include; measurements on productivity, effectiveness, and efficiency. Aside from the qualitative analyses, which are based on interviews and field observations, a combination of statistical software packages are utilized as tools toward building quantitative analysis in this study. Researches are conducted by gathering data from primary and secondary sources in service industries in Jakarta, and Bandung. As stated, it is expected that such studies would reveal the significance of measurements on the pool of human resources in trying to ensure organizational performance, and the creation of firm's value. It is expected that such issues are mostly true for small and medium enterprises, perhaps.

Keywords: measurements, productivity, human resources, financial, ratio, value, performance.

I. INTRODUCTION

For many years, the management of human resources has become the central focus in management practices. It is believed that the firm's human resources play a fundamental role in ensuring firm's viability. Taking a stance from the knowledge-based theory of the firm, which is originated from the classical theory of the firm (Anantadjaya, 2009b), this paper attempts to analyze possible measurements on human resources inside organizations.

Human resources represent the "breath and blood" of organizations. Many establishments have seen substantial growth given the quality of human resources. It is also undeniable that large corporations have seen substantial slide, regardless of due to the superb quality of human resources. The recent global crises have certainly shown such drastic slides. The adjacent figure strives to show the importance of human resources on organizational performance, and value creation.

Nonetheless, the pool of human resources is seen as an increasingly important resourceⁱ in grasping market opportunities, combating uncertainties and minimizing firm's shortcomings.

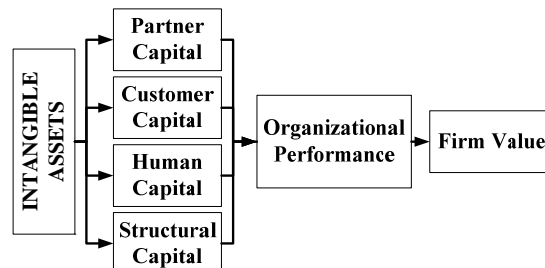


Figure 1: Components of Intangible Assets
Source: Anantadjaya, 2009

ⁱ The preliminary studies on firm's resources were first initiated by Edith Penrose (Anantadjaya, 2009b), who initially researched the internal management processes and practices. The management processes and practices were heavily influenced the organization-wide behaviors. Such 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.

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.
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 SCⁱⁱ, 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 strategic value-creation for organizations.

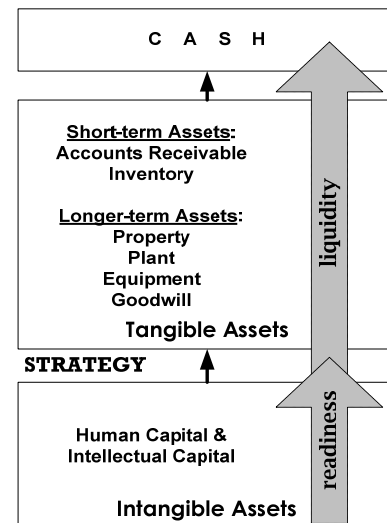


Figure 2: Transformation of Human Capital
 Source: Kaplan and Norton, 2004

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

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

firm's strategyⁱⁱⁱ, 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.

Hence, it is evident that the components^{iv} 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 (Anantadjaya, 2006; 2007a; 2007b; Brahmabhatt and Hu, 2007; Colombo and Grilli, 2005; Florackis, 2005; Richieri, et al, 2008).

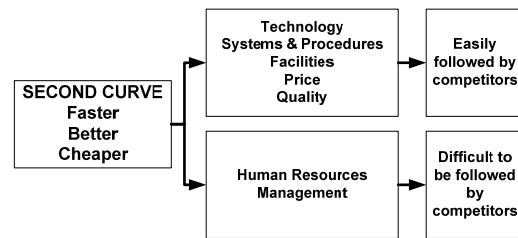


Figure 3: The Importance of Human Capital Source: Morrison, 1996

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

It appears rather intimidating to measure human resources of organizations, other than merely calculating the total numbers of them in any given firms. Most practices apply the amount of money spent in developing human resources to the firm's bottom-line. Though such practices seem common and widely acceptable, it may not provide the overall picture on the bottom-line. Measuring human capital should be based on how well the alignment and integration of human capital to the firm's strategy (Anantadjaya, 2009b; Colombo and Grilli, 2005; Florackis, 2005;

ⁱⁱⁱ 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).

^{iv} 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.

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^v (“ROCE”), return on equity^{vi} (“ROE”), return on assets^{vii} (“ROA”), return on sales^{viii} (“ROS”), return on investment^{ix} (“ROI”), inventory turnover^x (“ITO”), human resource costing and accounting, and many others (Richieri, et al, 2008).

To really note the value of human capital of a particular firm is considered troublesome. This is the reason why accounting records are mostly used to reveal the various values with respect to human capital. Productivity is a common measurement on human resources. The comparison between inputs and outputs is beneficial to note the workers’ level of productivity. The lesser amount of inputs relative to the higher amount of outputs indicates a much higher level of productivity. This is certainly what is expected by most firms.

Though the previous measurements appear decent, this paper aims to gauge the overall value creation for organizations using some financial measurements and ratios. The possibility of small and medium enterprises have records of financial statements are relatively slim. Thus, in the attempt to reveal effectiveness, some other measurable variables are used. Such variables are combined from few previously-used questionnaires (Istijanto, 2006).

III. LIMITATION

Referring to the scope of intangible assets, as discussed above, this paper focuses only on the human capital aspect of the intangible assets. This paper defines “human capital” to represent human resources in organizations.

IV. RESEARCH MODEL

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



Figure 4: Framework of Thinking

The diagram illustrates that the roles of human resources are crucial toward organizational performance and creating firm’s value, as previously discussed. The roles of human resources, in this study, are measured in accordance with financial measurements and ratios to show human resources’ influence toward boosting organizational value.

V. RESEARCH METHODOLOGY

A cluster sampling methods is used in this study to note the characteristics of those small and medium enterprises in certain locations, and 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; sales, expenses, TA, TL, TE, total inventory, NI, interest expense, tax

^v 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.

^{vi} ROE equals to NI/TE; where “NI” refers to net income, and “TE” refers to total equity.

^{vii} ROA equals to NI/TA; where “NI” refers to net income, and “TA” refers to total assets.

^{viii} ROS equals to NI/TS; where “NI” refers to net income, and “TS” refers to total sales.

^{ix} ROI equals to NI/II; where “NI” refers to net income, and “II” refers to total investment.

^x 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.

expense, growth rate, debt-to-asset^{xi} (“DAR”), debt-to-equity^{xii} (“DER”), ROE, ROI, ROCE, ROA, ROS, and ITO. Since small and medium enterprises are focused in this study, financial measurements from such organizations are represented in daily average over a minimum of 6 (six) months period, up to December 2008. 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 measurements and ratios are able to show the level of productivity, effectiveness, and efficiency for small and medium enterprises.

VI. RESULT AND DISCUSSION

VI.1. OVERVIEW OF STUDY

Based on the previous studies by Yogaswara, et al (2005; 2006), the original sample consists only 50 (fifty) respondents, whose businesses are still relatively young, and operate in the service industries in Jakarta and Bandung. The products and services sold in those establishments range from bakery/cakes, hair-dressers/barbershops, laundry/dry cleaning, delivery/courier services, copy centers, computer/internet rentals (*warnet*), cellular phone vouchers, garment, textile, and tutorial centers for computer and language training (*kursus/bimbel*). For the purpose of this study, total respondents are added to broaden the coverage.

Out of a total of 150 questionnaires are distributed, only 77 questionnaires are usable, mainly due to lack of financial information and misunderstanding on various questions, which result in incomplete responses. This represents 51.33% rate of response. 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’ average TA is about Rp. 17 million; (4) the respondent’s average TL is about Rp. 11 million; (5) the respondents’ average TE is about Rp. 6 million; (6) the respondents’ monthly average NI is about Rp. 1.5 million; (7) the respondents’ daily average of interest expense is about Rp. 14,000; (8) the respondents’ daily average of tax expense is about Rp. 3,000; (9) the respondents’ average TI is about Rp. 13 million; (10) the respondents’ average inventory is about Rp. 1 million; (11) the respondents’ monthly average growth rate is about 0.54%; (12) the respondents’ monthly average DAR is about 0.66%; (13) the respondents’ monthly average DER is about 1.95%; (14) The respondents’ monthly average ROE is about 0.71%; (15) the respondents’ monthly average ROI is about 0.32%; (16) the respondents’ monthly average ROA is about 0.24%; (17) the respondents’ monthly average ROCE is about 0.042%; (18) the respondents’ monthly average ROS is about 16%; and (19) the respondents’ monthly average ITO is about 4 times.

VI.2. Design and Procedures of Study

A total of 150 respondents 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 77 data are considered valid. These variables are measured using the 5-Likert’s scale. With only 51% response rate, the available data are verified using a reliability

^{xi} DAR equals to TD/TA; where “TD” refers to total debts, and “TA” refers to total assets.

^{xii} DER equals to TD/TE; where “TD” refers to total debts, and “TE” refers to total equity.

statistic measurement, which indicates a convincing 83% reliable. These indicate that the data are sufficiently reliable for further processing. However, since the descriptive statistics indicate that there are large variations, with the minimum value is 0.03, and the maximum value is 83 million, in terms of the scaling on the original data, a standardization process on scaling is deemed necessary. Standardized Z-scores are used in further analysis.

From the statistical factor analysis, results reveal substantial variations on majority of variables. Specifically, the communalities table, which was based on the extraction method of Principal Component Analysis, shows that all variables, except for “industry”, appear to have the ability to satisfactorily explain the variance, though few variables may not be considered as highly significant. It should be noted that the majority of extractions show a relatively perfect ability to explain the variance. This is simply due to the high degree of influence between those variables. One variable may be used to calculate other variables, such as; TA and NI to calculate DAR. Hence, given such variables in this study, only a handful of respondents’ characteristics may be used to justify the variance of the data toward creation of value in organizations.

Setting aside the financial measurements and ratios, it can be inferred that these variables show sufficient level of influence to the value creation in organizations. Using alpha (“ α ”) = 0.20, such inferences are confirmed by cross-tabs analysis, as follows;

1. Variable “gender” is significant with the following variables;
 - a. “growth rate” represents 76% dependency on “gender”. It means that “gender” contributes about 76% to the creation of higher growth rate. Based on the likelihood ratio chi-square probability, male respondents have a tendency to concentrate on growth than female respondents. This is also supported by the correlation between the variables, which indicates that male respondents have a tendency to create/realize higher growth rate than female respondents.
 - b. “DAR” represents 15% dependency on “gender”. It means that “gender” contributes about 15% to the creation of higher value of DAR. The likelihood ratio chi-square probability and the correlation between the variables show that female respondents have a tendency to create a higher value of DAR.
 - c. “DER” represents 43% dependency on “gender”. It means that “gender” contributes about 43% to the creation of higher value of DER. The likelihood ratio chi-square probability and the correlation between the variables show that female respondents have a tendency to create a higher value of DER.
 - d. “ROI” represents 61% dependency on “gender”. It means that “gender” contributes about 61% to the creation of higher value of ROI. The likelihood ratio chi-square probability and

Table 1: Case Processing Summary
Source: SPSS

		N	%
Cases	Valid	77	100.0
	Excluded ^(a)	0	.0
	Total	77	100.0

^(a) Listwise deletion based on all variables in the procedure.

Table 2: Reliability Statistics
Source: SPSS

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.769	.830	17

Table 3: Communalities
Source: SPSS

	Initial	Extraction
Zscore: Gender	1.000	.628
Zscore: Age	1.000	.758
Zscore: Location	1.000	.735
Zscore: Industry	1.000	.328
Zscore: Position	1.000	.614
Zscore: Expense	1.000	.858
Zscore: Sales	1.000	.999
Zscore: Op. Exp	1.000	.872
Zscore: TA	1.000	.999
Zscore: TL	1.000	.999
Zscore: TE	1.000	.999
Zscore: NI	1.000	.933
Zscore: Int Exp	1.000	.999
Zscore: Tax Exp	1.000	.997
Zscore: TI	1.000	.999
Zscore: Avg Inv	1.000	.999
Zscore: Growth	1.000	.997
Zscore: DAR	1.000	.978
Zscore: DER	1.000	.968
Zscore: ROE	1.000	.994
Zscore: ROI	1.000	.997
Zscore: ROA	1.000	.996
Zscore: ROCE	1.000	.921
Zscore: ROS	1.000	.997
Zscore: ITO	1.000	.996

Extraction Method: Principal Component Analysis

- the correlation between the variables show that male respondents have a tendency to create a higher value of ROI.
- e. “ROA” represents 51% dependency on “gender”. It means that “gender” contributes about 51% to the creation of higher value of ROA. The likelihood ratio chi-square probability and the correlation between the variables show that male respondents have a tendency to create a lower value of ROA.
 - f. “ROCE” represents a mere 6% dependency on “gender”. It means that “gender” contributes only about 6% to the creation of higher value of ROCE. The likelihood ratio chi-square probability and the correction between the variables show that female respondents have a tendency to create a higher value of ROCE.
2. Variable “age” is significant with the following variables;
- a. “DER” represents about 42% dependency on “age”. It implies that “age” contributes about 42% to the creation of higher value of DER. The likelihood ratio chi-square probability and the correlation between the variables show that younger respondents have a tendency to create a higher value of DER.
 - b. “ROI” represents about 65% dependency on “age”. It implies that “age” contributes about 65% to the creation of higher value of ROI. The likelihood ratio chi-square probability and the correlation between the variables show that older respondents have a tendency to create a higher value of ROI.
 - c. “ROCE” represents about 6% dependency on “age”. It implies that “age” contributes about 6% to the creation of higher value of ROCE. The likelihood ratio chi-square probability and the correlation between the variables show that older respondents have a tendency to create a higher value of ROCE
3. Variable “industry” is significant with the following variables^{xiii};
- a. “DAR” represents about 25% dependency on “industry”. It suggests that “industry” contributes about 25% to the creation of higher value of DAR. The likelihood ratio chi-square probability and the correlation between the variables show that other industries^{xiv} have a tendency to create a higher value of DAR. Those other industries may create a higher value of DAR simply due to the necessity of external financing to purchase any required machineries and equipments to run the business.
 - b. “DER” represents about 50% dependency on “industry”. It suggests that “industry” contributes about 50% to the creation of higher value of DER. The likelihood ratio chi-square probability and the correlation between the variables show that other industries^{xv} have a tendency to create a higher value of DER.
 - c. “ROCE” represents about 6% dependency on “industry”. It suggests means that “industry” only contributes about 6% to the creation of higher value of ROCE. The likelihood ratio chi-square probability and the correlation between the variables show that other industries^{xvi} have a tendency to create a higher value of ROCE.
4. Variable “position” is significant with the following variables;
- a. “DAR” represents about 16% dependency on “position”. It symbolizes that “position” contributes about 16% to the creation of higher value of DAR. The likelihood ratio chi-square probability and the correlation between the variables show that owners have a tendency to create a higher value of DAR. Undoubtedly, it is very true for owners. As owners, they would attempt to maximize returns on every available asset in the

^{xiii} Though “industry” was claimed to have the inability in providing statistical explanation on the data variance (based on the communalities table), the cross-tab analysis shows that the explanation power of “industry” to the variances in data is statistically sufficient. In fact, the explanation power of “industry” is about 50% to the creation of higher value of DER.

^{xiv} Those other industries include; laundry/dry cleaning, delivery/courier, computer/internet rentals (*warnet*), cellular phone vouchers, garment, and textile establishments.

^{xv} See previous footnote.

^{xvi} See previous footnote.

- organization. As the value of DAR increases, the utilization rate of assets becomes more efficient and effective.
- b. “DER” represents about 45% dependency on “position”. It symbolizes that “position” contributes about 45% to the creation of higher value of DER. The likelihood ratio chi-square probability and the correlation between the variables show that employees have a tendency to create a higher value of DER. It is a surprising fact since employees in small and medium enterprises work hard to achieve the highest level of ROE.
5. Variable “expense” is significant with the following variables;
- a. “DAR” represents about 18% dependency on “expense”. It indicates that “expense” contributes about 18% to the creation of higher value of DAR. The likelihood ratio chi-square probability and the correlation between the variables show that the lower the respondents’ monthly expenses, the higher the DAR. It is a surprising fact since the group of employees fall under the category of respondents with lower monthly expenses, and those employees appear to seek for a higher DAR. Perhaps, this occurs since the size of organizations in this study covers only small and medium enterprises, and those employees attempt to push the organizations toward future development.
 - b. “ROCE” represents about 6% dependency on “expense”. It indicates that “expense” contributes about 6% to the creation of higher value of ROCE. The likelihood ratio chi-square probability and the correlation between the variables show that the lower the respondents’ monthly expenses, the higher the ROCE. This shows a similar phenomenon to the above description. The group of employees, who falls under the category of respondents with lower monthly expenses, in this study, appears to strive for a higher ROCE. Perhaps, by attempting to increase EBIT, purchasing additional assets, and/or reducing liabilities, *ceteris paribus*.

Therefore, using $\alpha = 0.20$, it can be concluded that “gender”, “age”, “industry”, “position”, and “expense” influence value creation in organizations. Those variables of the respondents’ characteristics impact the level of “growth rate”, “DAR”, “DER”, “ROI”, “ROA”, and “ROCE”.

The above results are further verified using the factor analysis to build up a stronger conclusion that those variables have sufficient influence toward the value creation in organizations. The rotated component matrix table reveals 5 factors that can be formed using the available data. A closer look into the formation of those components suggests that component 1 consists of variables that will be used to further calculate other variables, such as; TA and NI are elements for the calculations of DAR. For this reason, all variables that formed component 1 are excluded for further analysis. With only a little bit of modification on data sets, the second table of the rotated component matrix shows that there are 4 factors that can be formed using the available data, as follows;

1. Component 1, which consists of; “growth”, “ROE”, “ROI”, “ROA”, “ROS”, and “ITO”.
2. Component 2, which consists of; “industry”, “DAR”, “DER”, and “ROCE”.
3. Component 3, which consists of; “age”, “position”, and “expense”.
4. Component 4, which consists of; “gender”, and “location”.

Table 4: Rotated Component Matrix^a
Source: SPSS

	Component				
	1	2	3	4	5
Zscore: Gender	-.177	-.060	.100	-.089	-.758
Zscore: Age	-.100	-.176	-.129	.813	.199
Zscore: Location	-.086	.064	-.047	-.140	.838
Zscore: Industry	-.166	-.150	.506	-.141	.046
Zscore: Position	.066	-.256	.029	-.699	.235
Zscore: Expense	-.054	.070	-.109	.915	-.039
Zscore: Sales	.976	.125	-.170	-.035	.027
Zscore: Op. Exp	.844	-.361	-.154	-.076	.012
Zscore: TA	.976	.125	-.170	-.035	.027
Zscore: TL	.976	.124	-.169	-.036	.027
Zscore: TE	.976	.126	-.172	-.033	.026
Zscore: NI	.856	.422	-.146	.000	.031
Zscore: Int Exp	.976	.124	-.169	-.036	.027
Zscore: Tax Exp	.987	.119	-.078	-.045	.019
Zscore: TI	.976	.125	-.170	-.035	.027
Zscore: Avg Inv	.976	.125	-.170	-.035	.027
Zscore: Growth	.129	.977	-.154	.036	.033
Zscore: DAR	-.269	-.137	.936	-.083	-.055
Zscore: DER	-.256	-.158	.932	-.061	-.067
Zscore: ROE	.092	.991	-.039	.018	.027
Zscore: ROI	.136	.976	-.153	.032	.034
Zscore: ROA	.128	.977	-.152	.035	.035
Zscore: ROCE	-.207	-.108	.916	-.005	-.163
Zscore: ROS	.132	.976	-.154	.034	.033
Zscore: ITO	.112	.988	-.069	.032	.025

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

^a Rotation converged in 5 iterations.

Elements in component 1 seem to support the **level of effectiveness** of human resources in performing various tasks inside organizations. As human resources become more effective^{xvii}, it is expected that there will be a faster turnover in the organizational inventory, an organizational growth will become a normal phenomenon, which will be translated into higher ROS, ROE, ROI, and ROA.

Elements in component 2 seem to support the **level of efficiency** of human resources in performing various tasks inside organizations. As human resources become more efficient^{xviii}, it is expected that there will be a higher rate on DAR, DER, and ROCE. As minimal human errors occurs while performing tasks inside organizations, the utilization rate on assets, equity, and capital employed would be improved. Also, the type of industry that those human resources are engaged in provides clue as to which industries are considered more efficient in utilizing their human resources. Hence, it can be deduced that industries, such as; laundry/dry cleaning, delivery/courier, computer/internet rentals (*warnet*), cellular phone vouchers, garment, and textile, are making the most of their human resources to create higher organizational value than other industries, such as; bakery/cakes, hair-dressers/barbershops, copy centers, and tutorial centers for computer and language training (*kursus/bimbel*).

Table 5: Rotated Component Matrix^a
 Source: SPSS

	Component			
	1	2	3	4
Zscore: Gender	-.187	.252	.206	-.677
Zscore: Age	-.044	-.437	.670	.351
Zscore: Location	.097	-.096	-.360	.761
Zscore: Industry	-.346	.436	-.006	.156
Zscore: Position	-.288	.080	-.720	.060
Zscore: Expense	.179	-.318	.839	.156
Zscore: Growth	.974	.220	.006	.008
Zscore: DAR	-.512	.805	.180	.181
Zscore: DER	-.526	.787	.200	.173
Zscore: ROE	.940	.334	.023	.031
Zscore: ROI	.974	.221	.002	.008
Zscore: ROA	.974	.222	.006	.010
Zscore: ROCE	-.466	.786	.269	.086
Zscore: ROS	.974	.220	.004	.007
Zscore: ITO	.952	.300	.027	.022

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

^a 4 componets extracted.

For the remaining elements in component 3 and 4, it becomes visible that those elements could be combined together since those elements represent the respondents' characteristics in this study. A closer look into these combined elements uncovers the possibility that "gender", "age", "industry", "position", and "expense" may have governed the **level of productivity** of human resources in performing various tasks inside organizations. As human resources become more productive^{xix}, it is expected that there will be a higher rate on growth rate, DAR, DER, ROE, ROI, ROA, ROCE, ROS, and ITO.

Hence, it is safe to conclude that despite of marginal response rate of only 51%, human resources are proven to shape the effectiveness, efficiency, and productivity in creating value for firms.

VII. Conclusion and Recommendation

Statistical tests and results above provide evidence that a number of variables are significant in shaping the creation of firm's value. This study can safely conclude that human resources statistically impact the level of effectiveness, efficiency, and productivity in creating higher firm's value. Though such results may have to be tested further to apply across the board, particularly into a bigger marketplaces, it provides preliminary objectives on inspiring factors to focus on to boost firm's value creation. This is particularly true, at least, for small and medium enterprises in Jakarta and Bandung. If such results are assumed to be acceptable across the board, for instance, it would have been safe to claim that the pool of human resources impact the creation of firm's value. Hence, if organizations would like to ensure high performance level to create value, organizations must adhere to the influencing factors mentioned above.

^{xvii} In this study, "effectiveness" is defined as "doing the right things".

^{xviii} In this study, "efficiency" is defined as "doing things right".

^{xix} In this study, "productivity" is defined as "ability to produce more outputs given the same amount of inputs".

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 and medium enterprises, covering more cities and towns, and attempting to test more measurements toward the creation of firm's value. This would enable a model to be applied across the board, at least. Also, additional variables should be incorporated into the study, such as; salary, education level, length of experience, numbers of customer complaints, price level (both on supplies and selling price), numbers of years the organization has been in business, the availability of business licenses, and others. Those suggested variables may eventually enrich the future study on the level of value creation.

BIBLIOGRAPHY

- Anantadjaya, S. P. D. (2009a), "An Analysis of Effectiveness on the University's Internship Programs in Indonesia: A Case Study at Selected Universities with International Curriculums", *Metropolitan Universities Journal*, forthcoming, Indiana University-Purdue University, Indianapolis, Indiana: USA.
- Anantadjaya, S. P. D. (2009b), "Literature Studies on Intangible Assets: From The Perspective of Theory of the Firm", *Majalah Ilmiah Maranatha*, Universitas Kristen Maranatha, forthcoming, July 2009.
- Anantadjaya, S. P. D. (March 2007a), "Financial Aspects of HR Scorecard & Business Process Evaluation: An Empirical Study in Retail & Service Industries", *proceeding, International Management Symposium, Universitas Surabaya*, March 2007, p. 80-98, available online at www.ssrn.com.
- Anantadjaya, S. P. D., A. Walidin, E. S. Waskita, and I. M. Nawangwulan (2007b), "Consumer Behavior, Supply Chain Management, and Customer Satisfaction: An Investigative Study in Small and Medium Enterprises", *proceeding, International Seminar on Industrial Engineering and Management*, p. E7-E15, available online at www.ssrn.com.
- Anantadjaya, S. P. D., and I. M. Nawangwulan (2006), "The Tricky Business of Process Evaluation", *The Jakarta Post*, September 6, 2006, p. 19, available online at www.thejakartapost.com.
- Brahmbhatt, M., and A. Hu (2007), "Ideas and Innovation in East Asia", *Policy Research Working Paper # WPS4403, The World Bank, East Asia Pacific Region, Chief Economist Office*, available online at www.ssrn.com.
- Colombo, M. G., and L. Grilli (2005), "Founders' Human Capital and The Growth of New Technology-based Firms: A Competence-based View", *Research Policy* 34, Politecnico di Milano, Department of Economics, Management, and Industrial Engineering, Pza Leonardo da Vinci, Milan: Italy, p. 795-816, available online at www.sciencedirect.com.
- Florackis, C. (2005), "Internal Corporate Governance Mechanism and Corporate Performance: Evidence from UK Firms", *Applied Financial Economics Letters*, Taylor & Francis Group, Ltd, UK, vol. 1, p. 211-216, available online at www.ssrn.com.
- Istijanto (2006), *Riset Sumber Daya Manusia: Cara Praktis Mendeteksi Dimensi-Dimensi Kerja Karyawan*, PT Gramedia Pustaka Utama, Jakarta: Indonesia.
- Kaplan, R. S., and D. P. Norton (2004), *Strategy Maps: Converting Intangible Assets into Tangible Outcomes*, Harvard Business School Publishing Corporation, Massachusetts: USA.
- Morrison, I. (1996), *The Second Curve: How to Command New Technologies, New Consumers, and New Markets*, Ballantine Books, a Division of Random House, Inc., New York: USA.
- Richieri, F. L., L. F. C. Basso, and D. D. L. Martin (2008), "Intellectual Capital and The Creation of Value in Brazilian Companies", *working papers, Escola Superior de Propaganda e Marketing*, Sao Paulo: Brazil, available online at www.ssrn.com.

- Sangkala (2006), *Intellectual Capital Management: Strategi Baru Membangun Daya Saing Perusahaan*, Penerbit Yapensi, Jakarta: Indonesia.
- Stewart, J. (2005), "Identifying the Sub-Components of Intellectual Capital: A Literature Review and Development of Measure", *Working Paper Series # 2005.05, University of Bath*, Claverton: UK, available online at www.ssrn.com.
- Yogaswara, P., S. P. D. Anantadjaya, and I. M. Nawangwulan (2005), "Entrepreneurial Research", *working papers on management audit work and findings, reference no. R-01-2005, ETC & Foundation*, Bandung: Indonesia.
- Yogaswara, P., I. M. Nawangwulan, and S. P. D. Anantadjaya (2006), "Management Audit", *working papers on interviews with personnel of numerous universities, retail stores, hoteliers, textile/garment firms in Bandung, Jakarta, Bogor, Bekasi, and Tangerang, reference no. R-02-2006, ETC & Foundation*, Bandung: Indonesia.

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