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Sriwijaya University

Palembang, October 18-20, 2012

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Greetings from Dean of Faculty of Economics, Sriwijaya University

Dear participants of the Miicema 13th - 2012 Conference,

On behalf of the Faculty of Economics, Sriwijaya University, we would like to welcome you to Palembang, Indonesia for the Miicema 13th Conference, 18th-20th October 2012.

We are excited organize our thirteenth Miicema conference in Palembang at Sriwijaya University. Sriwijaya University is States University in South Sumatera, has 10 faculties and 2 campuses. One is located at Bukit Besar in Palembang and another campus is located on 712 ha area of Indralaya, Ogan Ilir. This conference is really support us to be a “world class university”.

The conference bring together scholars and practitioners who interested to present theirs papers in area of economics, management and accounting. Participants found an excellent opportunity for presenting new research, exchanging information and discussing current issues. We believe that this conferences will improve further the development of knowledge in our fields. This opportunity could be used as a way to broadening their international networks.

We regret that we were unable to accept more paper than we have. In this conference, 163 papers were presented. In addition, based on the contribution of the paper to the field, the Miicema Committee has selected three papers for the best paper award.

Finally, I would like to thank our sponsors for their generous financial support and valuable collaboration. I would also thank all of the presenters, participant, board members, and keynote spreakers.

I hope you enjoy the conference and wish a pleasant and memorable stay in Palembang.

Best Regards,
Dean of Economic Faculty,
Sriwijaya University

Prof. Syamsurijal AK, Ph.D

MESSAGE FROM CONFERENCE CHAIR

Welcome to The 13th Malaysia-Indonesia International Conference on Economics, Management and Accounting (MIICEMA) 2012

The Malaysia-Indonesia International Conference on Economics, Management and Accounting (MIICEMA) aims to stimulate interest in economics, management and accounting research and to encourage discussion on those related issues with special reference to ASEAN countries. The conference has been held for 13 times in this year. As time goes on, the number of MIICEMA members increase and it also tries to broaden the scope of collaboration to include academic matters amongst others.

The 13th MIICEMA 2012 is hosted by Faculty of Economics, Sriwijaya University in collaboration with UKM, IPB, UNPAD, UNSYIAH, UNIB, UMS, UNJ, UNILA, UPI (YAI) AND STIE (YAI). of MIICEMA and. The association aims to play supportive role in promoting Palembang as an international city.

MIICEMA has been successfully organizing annual conferences in collaboration with those higher learning institutions mentioned. The support from academicians, researchers and business practitioners is clearly evident from the increasing number of papers received by organizers this year. This year a total of more than 220 abstract and 163 full papers were received and most of them will be presented.

I would like to thank and congratulate the Rector of Sriwijaya University, Dean of Faculty of Economics for their support, Ministry of Finance of Republic of Indonesia for their support financially, South Sumatera Government, Palembang City Municipal and other sponsors i.e PT. BUKIT ASAM, PT. SEMEN BATURAJA, PT. PUSRI, BANK MANDIRI, BANK SUMSELBABEL, BANK BNI, MITRA ADIGUNA, AJB BUMIPUTERA, for their finance support. Last but not least I would like to thank to paper writers, participants and organizing committee for your support.

Isnurhadi, Ph.D
Conference Chair
October, 2012

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INFLUENCE OF DISTRIBUTIVE JUSTICE AND PROSEDURAL JUSTICE PERCEPTION ON BUDGETARY SLACK: STUDY EXPERIMENT ON PARTICIPATORY BUDGETING CONTEXT

**Prepared by
Delli Maria**

ABSTRACT

This study aimed to test whether perception of distributive justice and procedural justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create the budgetary slack. An experimental design 2x2 between subjects was conducted. Participants were 43 students of Master of Economics of Development and Master of Accounting, Faculty of Economics and Business Gajah Mada University. Hypothesis testing with ANOVA. The results of this study indicate that perceptions of distributive justice and procedural justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create budgetary slack.

Key words: Participatory Budgeting, Distributive Justice, Procedural Justice, Budgetary Slack

INTRODUCTION

Budget other than as a financial plan in the form of revenues and expenses to be achieved by the responsibility center, can also be used as a means of communication, motivational, coordinating, delegating authority from supervisor to subordinates, the process of budgeting and control and evaluation of performance (Otley, 1978; Chow, et al., 1988; Kenis, 1979; Hofstede, 1968; Fay, et al., 1971). The importance of the budget led to the participation of subordinates in the preparation of the budget (participatory budgeting) is necessary because it will produce better information (Dunk, 1993), will provide the opportunity for employers to gain access to local information (Baiman, 1982) that allows subordinates to inform their private information. Furthermore, Milani (1975) explains, by developing a participatory budget is expected to increase where the manager's performance as a purpose designed and approved in a participatory manner, the employee will internalize the goals set and have a sense of personal responsibility to achieve it because they get involved in the preparation.

But in reality, the budget as a means of evaluation is often misused by subordinates in the process of its compilation (Stede, 2000). This occurs when subordinates want performance assessed both by supervisor and the budget is seen as a

pressure to achieve it (Siegel and Marconi, 1989). Various attempts were made subordinate in the budgeting process to protect themselves from the risk of not reaching the budget targets, making it easier to achieve budget or budgetary slack (Schiff and Lewin, 1970; Chow et al. 1988; Stede, 2000; Blanchette et al. 2002). Empirical evidence related to testing the relationship between the subordinate's participation with a budgetary slack showed inconsistent results. The results Camman (1976), Dunk (1993), Merchant (1985) and Onsi (1973) showed that the participation in the preparation of the budget could reduce the budgetary slack. This is because subordinates help provide personal information about future projects so that the budget is structured to be more accurate. On the other hand, the results of research conducted Lowe and Shaw (1968), Schiff & Lewin (1970), Lukka (1988) and Young (1985) showed that participation in the budget and the budgetary slack has a positive relationship is the increasing participation of the budget would increase the budgetary slack. More specifically Lukka (1988) stated that high participation in the budgeting process to give greater opportunities to subordinates to do the slack.

In addition to the contingency theory approach (Govindarajan, 1986), inconsistencies in research can also be explained by using the approach to agency theory (Steven, 2000). This theory generally assumes that the principal is risk-neutral and the agent is risk averse and effort. Where, the principal (employer) and agent (subordinate) are the two economic agent seeking to maximize his utility. Each party to both supervisor and subordinates will do the trade off between the plan or the proposed budget with the actual potential which should be by way of storing private information (information asymmetry). Further, agency theory explains that the budgetary slack may be associated with four conditions, namely: (1) There is information asymmetry between supervisor and subordinates (principal-agent) with respect to the potential output of subordinates, (2) There is uncertainty among businesses and output, (3) There is conflict between supervisor and subordinate objectives, and, (4) The subordinate personal interests. Researchers suspect can overcome the information asymmetry between subordinates and supervisor if there harmonious relationship arising from a feeling of trust with each other. The presence of trust can be triggered by the presence of justice perception run and supported by corporate.

The theory of justice assumes that the perceptions and beliefs someone about the justice perception related with work, forming a strong confidence and this influence a person's behavior and attitude towards work. Tyler (1989) stated that a condition that can not be denied that employees are very concerned about justice in the allocation and the procedures used in decision making. Empirical evidence also has strengthened the suspicion. The results Merchant (1985) which indicates, that the tendency of managers to create a budgetary slack can be influenced by the manner in which the organization's budgeting system is designed and carried out and justice is one of the common characteristics of the budget system that has the potential to reduce the tendency to create budgetary slacks. More specifically Libby (2001) stated that the increase perception to justice (procedural justice) are perceived associated with increased performance and reduced the budgetary slack creation. Maiga and Jacobs (2007) noted that procedural justice and distributive justice affect confidence in subordinates to their supervisor and then justice and trust they can significantly affect the budget goal commitment, goal commitment, which influence the propensity to create make budgetary slacks. The results Staley (2003) also proves that procedural justice and interactional justice can affect the tendency of managers to make budgetary slacks.

On the other hand, presents an empirical study of the phenomenon that is quite alarming, is associated with negative potential budgetary slacks. Where it has been proved that the budgetary slack has the potential to: first, damaging the effectiveness of the budget as a tool of organizational planning and control resulting in the distribution of resources during budget formulation is less optimal (Nouri and Parker 1996). Second, it can reduce costs and increase profit opportunities in the organization (Stevens, 1998). Third, information bias resulting in supervisor decision making by the misallocation of corporate resources, performance evaluation of bias and effort (effort) is low by subordinates (Dunk and Nouri, 1998).

The importance of the budget and not least the negative implications arising in the event the budgetary slack, researchers to examine more deeply the relationship of perceptions of distributive justice and procedural justice in reducing the tendency of subordinates in creating a budgetary slack. This study aimed to test whether distributive justice and procedural justice perception subordinates during the participatory budgeting process can minimize the tendency of subordinates to create the budgetary slack. The results of this study is expected to provide benefits to various parties. First, helping with supervisor in reducing the tendency of subordinates in doing the budgetary slack by looking at the justice perception subordinates to their can reduce the tendency of subordinates in performing budgetary slacks so that the negative impact of the budgetary slack could avoided. Second, this study can enrich the treasures of knowledge, mainly related to distributive justice and procedural justice in participatory budgeting and its impact on subordinates trend in creating the budgetary slack.

THEORETICAL STUDY AND HYPOTHESIS BUILDING

Discussion and research on justice was initially influenced by the individual reactions related to the principle applied (Greenberg, 1996). Justice can be defined as the fulfillment of a right. The psychology of reactions to justice will bring positive impact and psychological sciences discuss the principles of justice.

Taxonomy of organizational justice theories

Greenberg (1987) describes the taxonomy of organizational justice theories. Taxonomy is meant here is to present the category of organizational justice theory with two independent dimensions-the dimensions of proactive and reactive process-dimensional content.

a. Proactive-Reactive Dimension

Reactive-dimensional proactive proposed as distinction made by Van Avermaet, McClintock and Moskowitz (1978), and has been used Greenberg (1982) to arrange equity theory. Distinction is to correct mistakes and try to achieve justice injustice Reactive theory of justice focuses on those who attempt to escape or to avoid injustice country. In contrast to the theory that focuses on proactive behavior designed to introduce justice.

b. Process-Content Dimension

The second dimension of the taxonomy of organizational justice theories are process-dimensional content inspired by special legal research between the way verdicts are driven and what verdict hose are (Thibaut & Walker, 1978) Process focused approach to justice in a variety of outcomes (for example, the organization is pay and recognition) was determined. As the focus of orientation

in justice (fairness) and the use of procedures for organizational decisions and to implement those decisions. In contrast to the approach of content covered in their own fairness (justice) that produces the distribution of outcomes

Justice theory that will be used in this research is the theory of distributive justice (Homans's, 1961, Adam, 1965, Walster et al 1978) resulting from the reactive content theory and the theory of procedural justice (Thibaut & Walker, 1978) resulting from the reactive process theory .

Identifying Theories Within Taxonomy (Greenberg, 1987)

Reactive-Proactive Dimension	Content-Process Dimension	
	Content	Process
Reactive	Reactive Content Equity Theory (Adams, 1965)	Reactive Process Procedural Justice Theory (Thibaut & Walker, 1975)
Proactive	Proactive Content Justice Judgement Theory (Leventhal 1976a, 1980)	Proactive Process Allocation Preference Theory (Leventhal, Karasu & Fry, 1980)

The theory of justice assumes that the perceptions and beliefs someone about the justice perception related with work, forming a strong confidence and this influence a person's behavior and attitude towards work. Tyler (1989) stated that a condition that can not be denied that employees are very concerned about justice in the allocation and the procedures used in decision making. Empirical evidence also has strengthened the suspicion. The results Merchant (1985) which indicates, that the tendency of managers to create a budgetary slack can be influenced by the manner in which the organization's budgeting system is designed and carried out and justice is one of the common characteristics of the budget system that has the potential to reduce the tendency to create budgetary slacks. More specifically Libby (2001) stated that the increase perception to justice (procedural justice) are perceived associated with increased performance and reduced the budgetary slack creation. Maiga and Jacobs (2007) noted that procedural justice and distributive justice affect confidence in subordinates to their supervisor and then justice and trust they can significantly affect the budget goal commitment, goal commitment, which influence the propensity to create make budgetary slacks. The results Staley (2003) also proves that procedural justice and interactional justice can affect the tendency of managers to make budgetary slacks.

In participatory budgeting, if the budget is able to be achieved is seen as the output of the relationship then the individual's ability and efforts to achieve the budget can be viewed as an input. When ability and effort are suitable to achieve the budget, distributive justice ensues. When the effort and ability are not the same to achieve the budget, however, there is no distributive injustice (Wentzel, 2002). Participatory budgeting allows subordinates to influence the feelings of their supervisors. Brockner and Siegel (1995) argues that individuals can see the structural (eg, decision / process control) and the interpersonal component of procedural justice in the organization as an

indication of how they will be treated by the organization supervisor and manager. Fair procedures are structured and interactional "Childbirth confidence in the system and in implementing the decision while the lack of structural and / or interactional justice will lead to low levels of trust" (Brockner and Siegel, 1995). We would equate this to the logic of distributive justice. That is, when the distribution of the organization is considered to be fair, a higher level of confidence occurred despite the possibility that if the method or procedure in which the results of perceived unjust. Justice of the outcomes may not be significant in eliciting trust (Pillai et al., 1999). Staley (2003) explains, if the subordinate is aware of distributive justice, subordinates tend to see their immediate supervisor as a major player in the implementation of a formal budget. Distributive justice suggest to a subordinate that he can expect to receive material benefits and psychological benefits from a supervisor in the long run. Therefore, the subordinate will give trust to supervisors, and subordinates if the supervisor believes the award to provide material and psychological benefits in the long term, the subordinate will respond by lowering the tendency to create budgetary slacks. Further Magner and Johnson (1995) identifies that justice distributif associated with outcome because the emphasis is on the distribution received, regardless how the distribution was determined. If the basis used for performance assessment is considered to be fair, then the subordinate will trust that are acceptable outcomes associated with performance also more fair. So the researchers propose hypotheses as follows:

H1: Perceptions of distributive justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create budgetary slack.

H2: Perceptions of prosedural justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create budgetary slack.

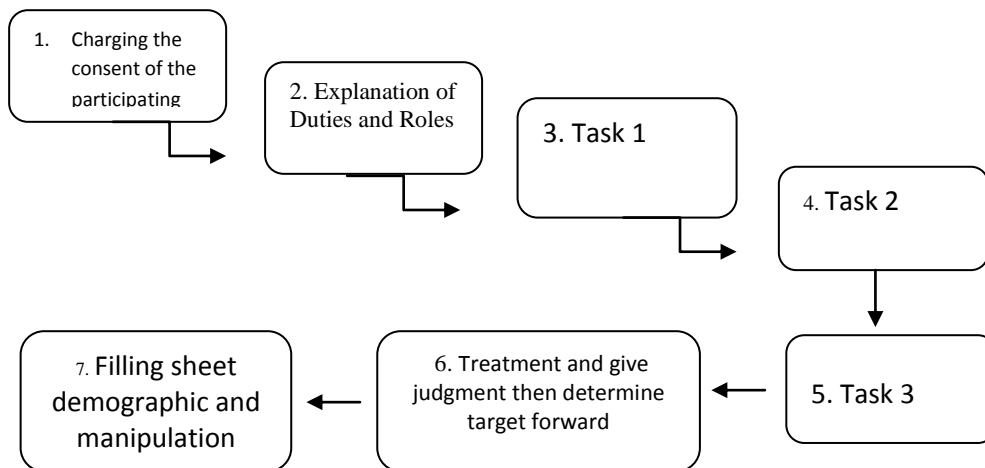
RESEACH METHOD

Participants who were included in this study were 43 students of Master of Economic Development (MEP) and Master of Accounting (MAKSI) FEB UGM. Of the 43 participants, two participants did not meet the manipulation checks so that only 41 participants used in this study.

This study is experimental research. With a two by two (2x2) factorial design and the between-subject. Design of experiments manipulating persepsian of distributive justice and procedural justice of the participants. The division of tasks carried out a randomized experiment (randomly assigned) so that these groups can be compared (Cooper and Schindler, 2001). Sekaran (2000) also argued that the randomization process will ensure each group can be compared with each other.

The whole series of experimental tasks can be completed in less than 30 minutes. Because the participants are volunteers, then as a first step, researchers gave a statement that the participants are willing to volunteer in this study. Then, the researchers briefed the participants about their role as member of production team PT. SMART. Where the current PT. SMART is getting tender making guidebooks Academic Potential Test (TPA), and the production manager is doing the selection for the production team who will be responsible in the manufacture of manual tendering this projec. In this selection test, participants were asked to make an answer key of the series about the TPA that has been provide. To see the consistency and participants' ability, test answer key generation is done three times. After that, participants are faced with a character-led production, in this case the treatment of justice done, each

participant was randomly assigned to different cells. The next step provides an assessment of participants associated with the production team the confidence level of production manager, and then participants were asked to determine the performance targets in the future if elected to the team responsible for the manufacture of TPA guidebooks.



Research Procedures

Distributive justice manipulated with the attainability (achieved) to condition a fair and unattainability (difficult to achieve) for conditions that are not fair. Procedural justice when the procedure is considered fair targets determination consistently applied, in decision-making subordinates continuously involved and given the opportunity to express opinions. In accordance with previous studies conducted by Steven (2002). So this study measured the variable budgetary slack with the formula:

$$BS = \frac{\text{Yeald 3 – production targets}}{\text{Expected performance}}$$

Expected performance is obtained from the best performance during the pilot test.

This study will use a method of compensating slack inducing (SI). In theory, companies are using incentive-based compensation because they disutility than utility individuals obtain from their work activities. So the reward is needed to ensure that the employee works in accordance with the purpose of the owner (Fessler, 2003). Inducing slack calculation formula based on the research Steve (2002):

$$P = A + \{a \times (Y' - Y'')\} \text{ if } Y' > Y''$$

$$P = A \text{ if } Y' < Y''$$

Description:

P = total compensation received by each of the subordinate (in USD)

A = Salary received remained subordinate (in USD)

a = Bonus per unit (in USD)

Y' = Number of production actually produced (in Units)

Y'' = production target proposed by the subordinate (in units)

Because the primary purpose of this study was to determine the effect of primary (main effect) of categorical independent variables on the dependent variable matrix, then the hypothesis testing will be done using the statistical test Analysis of Variance (ANOVA).

RESULTS AND DISCUSSION

Descriptive Statistics Sample

Participants are involved in this experiment were 45 students, Masters in Development Economics (MEP) and Master of Accounting (MAKSI) student FEB UGM. However, the number of 37 students MEP, two people who do not pass the manipulation checks, so that only 35 participants who were employed in this experiment. Meanwhile, eight students graduated maxi all manipulation checks, bringing the total number of participants that can be used in this experiment is 43 people. Number of students MEP who dominate these experiments did not affect the experimental results. Independent Samples Test results showed that both groups of students have a mean that relatively similar, 2.4571 and 2.5000 for MEP students and MAKSI students. Levene's Test with $F = 0006$ and sig. 0939 (not significant) on the subject indicate populations have the same variance. Regreition test results showed a similar thing, with $F = 0009$ and $p = 0924$ (not significant), suggesting that differences in the type of education students have no effect on the experimental results. Likewise the other participant demographics, differences of gender, age, work experience, participants did not affect the experimental work. It can be seen from the ANOVA test that produces a significance level > 0.05 . (Table 1 and Table 2)

Results Manipulation Checks Experiments

The results of manipulation checks conducted to determine whether the case / scenario experiments that illustrate the real conditions based on indicators that include, understanding the scheme compensation points (5 the question), understanding the treatment of distributive justice (2 questions) and the treatment of procedural justice (2 questions), and budgetary slack (1 question). An understanding of distributive justice and procedural justice are done by making judgments with five Likert scale of measurement. As for understanding compensation points associated with the scheme, carried out by giving questions to stimulate participants to think and calculate the requested point scale. Budgetary slack by answering the question, how many points to be gained if performance is below target participants. Manipulation checks carried out at random, hoping to find a direct opinion parisipan shortly after treatment is given. The results of manipulation checks showed that participants understand the treatment with the scale points (mean 4.7209), treatments associated with distributive justice (mean 9.1860) and procedural justice (mean 9.3256), trust (mean 4.4884), and budgetary salck (4.6977). (Table 3)

Instrument Reliability Test Results

Based on reliability test results, generate trust construct Cronbach Alpha value

of 73.2% which, according to criteria of Nunnally (1960), the construct can be said to be reliable or dependable. (Table 4)

Instrument Validity Test Results

Using factor analysis, it is known that the appearance of SPSS output showed that the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA) = 0.527, so does the value Bartlett's test with Chi-Squares = 80.847 and significant in 0.000, it can be concluded that the test factor analysis can proceed. Of the total output variance explained, when viewed eigenvalues values the first factor with eigen value 2.242 is able to explain the variance of 56.040% while the second factor with eigen value of 1.328, 33.196% able to explain the variance. Which means that these two factors could explain 89.237%. And the component matrix, note there is no cross-loading (located on two or more factors).

Assumptions Analysis of Variance (ANOVA)

The results of the output of the Levene's test of homogeneity of variance of slack indicates that the value of F test for 2.212 and significant at 0.05 ($p < 0.05$) which means it can reject the null hypothesis that states the variance is not the same (different). ANOVA assumptions are not met means that the same variance. However, despite the assumption of equal variances is violated, Box (1954) state that can still be used ANOVA because ANOVA is robust for small and moderate deviations from homogeneity of variance.

Multivariate Normality

The results of Kolmogorov-Smirnov test for slack to give the value 1.196 with the probability of 0.114 well above 0.05, so it can be concluded that we can not reject the null hypothesis which means that the data normally distributed slack. This is also supported by the results of a variable slack histogram chart. (Table 7 Chart 1)

Independent or Random Sampling

To meet independensi during the observation, then the division of tasks carried out a randomized experiment (randomly assigned) for the two treatment conditions of distributive justice (fair and unfair) and procedural justice (fair and unfair). Placement into into groups needed to create these groups can be compared (Cooper and Schindler, 2001). Randomization is also supported by the ANOVA output shows the between group (explained) variance is greater than within groups (residual) variance, so the value of F ratio would be 30.00, which means the difference between mean values occur at random.

Results Hypothesis Testing

The test results as a whole, the source budgetary slack, the total effect of the experiment (sum of squares) than for model (SSM = 562.366) with an average effect of the experiment (mean square) of 187,455. At the source error (within-group), which is detailed unsystematic variance of the data, showing the residual sum of squares (SSR) is equal to 168,145 with the amount of residual mean square (MSR) is 4311. The value of F is 43,479 and its significance in 0.000 (under 0.05). From the data above we can conclude that there are differences in the average budgetary slack between treatments. Adjusted R Squared and the magnitude of 0.752 showed that the variability of budgetary

slack can be explained by treatment of 75.2%.

Hot post test results indicate a difference in the average budgetary slack between treatments. Known differences in the average the highest of all treatments is happening on cell 1 (KDKP) and cell 3 (NN) with a difference of 10.0909. This indicates that the subordinate who has perception distributive justice and procedural justice to the employer to have a greater trust to the supervisor. This conclusion is also supported by Homogeneous Subset tables, which provide information categories of independent variables and mean values (means). Where KP and KD are the subset of 3 which means there is no difference in the average trust. While the NN and KDKP present in a subset of another column or there is a difference between NN and KP, between NN and KD, between KP and KDKP, and between KD and KDKP. The results of the plot also showed consistent results, where the condition of distributive justice and procedural justice (KDKP) produces a high budgetary slack (mean 17.5), whereas the NN condition produces a low trust (mean below 7.5) (Table 9). So we can conclude the first hypothesis (H1): Perceptions of distributive justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create budgetary slack. And the second hypothesis (H2): Perceptions of prosedural justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create budgetary slack, are supported.

CONCLUSION, LIMITATION AND SUGGESTIONS

Conclusion

This study aimed to test whether perception of distributive justice and procedural justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create the budgetary slack. An experimental design 2x2 between subjects was conducted. Participants were 43 students of Master of Economics of Development and Master of Accounting, Faculty of Economics and Business Gajah Mada University. Hypothesis testing with ANOVA. The results of this study indicate that perceptions of distributive justice and procedural justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create budgetary slack.

This also indicates that the perception of distributive justice and procedural justice subordinates during the participatory budgeting process can alleviate agency problems (Jones, 1995), because distributive dan procedural justice will increase the exchange of information between supervisors and subordinate (Fisher et al .. 2005), so it will reduce information asymmetry, and asymmetry of information will eventually reduce budgetary slack (Cammann, 1976; Merchant, 1985; Onsi, 1973 and Dunk, 1993). So overall the results of this study can be concluded that, perception of distributive justice and procedural justice subordinates during the participatory budgeting process can minimize the tendency of subordinates to create the budgetary slack.

Limitations of Research

This study uses experimental methods, some limitations are inherent in this study should be knowledged. Experimental research designs have high internal validity, but have low external validity. So it is possible the results of this study can not be generalized. In addition, the use of participants who have not been directly involved in the participatory budgeting process also allows the existence of bias in this study.

Suggestions for Future Research

Several limitations to this study is the opportunity to conduct advanced research that can provide improvements and validation of theoretical influences perceptions of distributive justice and procedural fairness towards budgetary slack. Future studies can use the participant participatory budgeting direct actors (professionals). This study can be extended with the include interactional justice (Staley, 2003).

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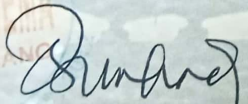
**THE 13th MALAYSIA - INDONESIA INTERNATIONAL CONFERENCE ON
ECONOMICS, MANAGEMENT AND ACCOUNTING (MIICEMA) 2012**

“ASIA EMERGING ECONOMY TOWARD GLOBAL ECONOMIC INTEGRATION”

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STIE

**TESTING THE VALIDITY
OF CAPITAL ASSET PRICING MODEL (CAPM) AND
ARBITRAGE PRICING THEORY (APT) IN PREDICTING
THE RETURN OF STOCKS IN AN EMERGING MARKET:
Evidence from Indonesia Stock Exchange (IDX) 2008-2010.**

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Abstrack

Financial experts have developed two approaches to measure the required return of stock , those are the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT). CAPM explains that stock return is the sum of the risk free rate plus beta times the excess return. While APT explain that return can be predicted by using a number of macro factors (such as GDP, inflation, and others). The purpose of this study was to determine whether there is influence of the market excess return on LQ45 companies stock returns (using CAPM) and also whether there is influence of the variable / factor Arbitrage Pricing Model(APT) as Gross Domestic Product and Interest rate on stock returns in period 2008-2010. The results show that CAPM and APT, with the t-test and F-test results are very significant. Based on coefficient of determination, APT is better than CAPM in predicting stock returns.

Keywords: Return, CAPM,APT.

I.Introduction

Financial experts have developed two approaches to predict the return of an investment based on its risk or use a variable as well as certain factors of the macro economic .Those approaches are the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT).

Capital Asset Pricing Model (CAPM) introduced by William Sharpe (1964) and Litner (1965) describes that in the condition of equilibrium, asset return is the sum of the risk free rate plus beta times the excess return. Risk is measured only by the sensitivity of individual securities return to the market index return (beta).One of the assumptions in the CAPM is that all investors have the same mindset or way of looking at the investment, especially in estimating the expected return of a stock. In the real world this assumption clearly has a weakness, because no one proxy is sufficient to describe why return of a stock changes. The changes of return of one stock can not be explained by one factor (market index) only.

Therefore, in 1976, Stephen A. Ross formulate a theory called the Arbitrage Pricing Theory (APT) is described by Sjahrial Benefactor (2007). Although this model as a whole can not solve the deficiencies contained in the CAPM model, but this is the first model was developed to try to eliminate the deficiencies that occur in the CAPM model. So that making the Arbitrage Pricing Theory to be a potential substitute for investment decision makers is that the attempt to explain the relationship of risk and expected return by using multiple factors instead of the single market

index. Ross stated that the expected return variation caused by changes in GDP, inflation, term structure and other economic variables.

From several previous studies on the relationship between the CAPM and the APT with stock returns, research has been done there is a difference of selected variables and produce different conclusions. Among previous studies that give different conclusions among others:

1) Delly, period 2001 to 2006, the results of studies using the standard deviation is known that the CAPM model is more accurate than the APT model in predicting stock returns.

2) Gancar Premananto Candra and Muhammad Madyan doing research in 1991-2001. There are significant differences between the accuracy of the CAPM model with APT model in predicting stock returns of manufacturing industries during the economic crisis, in which the CAPM model is more accurate than the APT model.

3) H. Jamal Zubairi and Shazia Farooq conducted the study in 2004-2009. In conclusion, this study explains that both the CAPM and the APT model does not indicate a valid results in the recovery of prices in the oil, gas and fertilizer.

With the two theories is the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT), as well as the weaknesses that are owned by each model in predicting stock returns. Then based on the background described above, the authors are interested to make this as a topic role in the study with the title:

" TESTING THE VALIDITY OF CAPITAL ASSET PRICING MODEL (CAPM) AND ARBITRAGE PRICING THEORY (APT) IN PREDICTING THE RETURN OF STOCKS IN AN EMERGING MARKET: Evidence from Indonesia Stock Exchangr (IDX) 2008-2010.

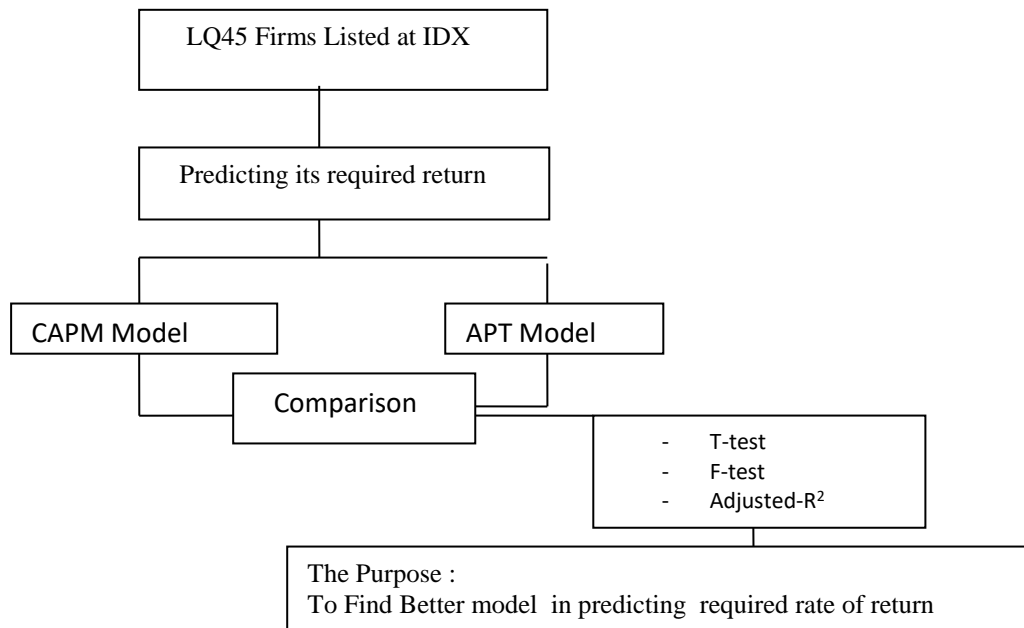
In order to understand how to predict return (required rate of return) of one stock or investment in the emerging markets, this paper is therefore devoted to investigate required return of a stock of LQ45 companies listed in Indonesian Stock Exchange (IDX) using CAPM or APT, one of the most prospective market in Asia. Special attention will be given to study which one is better (testing the validity) , CAPM or APT.

II. Method

2.1. Framework of the Study

Based on theoretical study and previous research, an analytical and framework of study was made to show the flow this research (see Figure-1).

Figure 1. Flow of this Research



In the first, we take LQ45 firms in IDX.

To investigate the influence of excess return market to return of stock,

this research using CAPM Model : $E(R_i) = R_F + (R_m - R_f) \beta_i$

Where :

$E(R_i)$ = Expected return on security i

R_F = Risk free rate of return

R_m = Market return

β_i = Sensitivity

and to investigate the influence of GDP and Interest rate using APT model :

$$E(R_{it}) = a_0 + b_1 GDP_t + b_2 INT_t + e_0$$

Where :

$E(R_{it})$ = Expected return on stock i, period t

a_0 = Constant.

b_{12} = Sensitivity of each factor.

GDP_t = Economic growth rate in period t

INT_t = Interest rate in period t

e_0 = Random error

2.2. Data and Analysis

Research was undertaken on LQ45 firms listed at IDX in 2008-2010. The criteria for the selection of firms to be made sample are:

- 1) The firms have been always/continuously listed in LQ45 index at IDX during that period 2008-2010.
- 2) Firms that issue quarterly financial statements during the period 2008-2010.

Data were collected from various sources, such as www.idx.co.id, Indonesia Capital Market Directory (ICMD) and Annual Report (audited). All variables used are ratio measurement scales. Those variables are: $E(R_i)$ =Expected return on security i, R_f = Risk free rate of return, R_m = Market return ; $E(R_{it})$ = Expected return on stock i, period t, GDP_t = Economic growth rate in period t, INT_t = Interest rate in period t.

The hypotheses in this research are:

From CAPM

H1: Expected return on security is influenced by Excess return market ($R_m - R_f$).

From APT

H2: Expected return on security is influenced by GDP and Interest rate.

III. Results

III.1 The Result of CAPM

Tabel 3.1

The results of calculation of regression coefficients, T-test and Significance-value.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.482	.026		-18.764	.000
	Excess_Return	.278	.041	.467	6.797	.000

a. Dependent Variable: Return

Source : Data Processed with SPSS 17.

To determine the effect of excess return on stock return, regression equation is used:

$$\text{Return} = -0.482 + 0.278 \text{ Excess Return} + e$$

The results of this regression model indicates variable. excess return has a positive influence on stock returns.

III.1.a. Partial Test(T-test)

Test to determine the effect of the partial effect of each independent variable on the dependent variable, this test using the t-test. Based on calculations in the table above (table 3.1), a partial test for each independent variable are as follows:

The significant value of excess return on stock returns are for 0,0000. This result is smaller than the value $\alpha = 0.05$ (excess return significant value = 0.000 < α value = 0.05). It means that the excess return has a significant positive influence on stock returns.

III.1.b. Coefficient of Determination .

Tabel 3.2

The results of calculation of coefficient of determination

Model Summary^b

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.467 ^a	.218	.213		.182991

a. Predictors: (Constant), Excess_Return

b. Dependent Variable: Return

Source : Data Processed with SPSS 17.

From table 3.2 above, R² (R square) of 0,218 or 21.8%. This suggests that 21.8% stock return variation can be explained by the variation of independent variable (excess return) while the rest 78.2% is influenced another factors that are not revealed in this study.

III.2. The Result of APT.

In analysis of APT, this research using multiple regression analysis to determine whether there is influence of the two variables as independent variables (GDP and Interest rate) to the dependent variable (return on LQ45-stock).

Table 3.3

The results of calculation of regression coefficients, T-test and Significance-value.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.089	.009		10.021	.000
	GDP	.038	.008	.386	4.488	.000
	Interest	-.128	.015	-.724	-8.411	.000

Source : Data Processed with SPSS 17.

To determine the effect of GDP and Interest rate on required return of stock ,regression equation is used:

$$\text{Return} = 0089 + 0038 \text{ GDP} - 0128 \text{ Interest} + e$$

The results of this regression model indicates the direction of the effect of each independent variable consisting of GDP and Interest rate on the dependent variable (stock returns). GDP has a positive influence on stock returns, while Interest rate has a negative effect on stock returns.

III.2.a. Partial Test(T-test).

Test to determine the effect of the partial effect of each independent variable on the dependent variable, this test using the t-test. Based on calculations in the table 3.3 above, a partial test for each independent variable are as follows:

1) Gross Domestic Product (GDP)

Significant value of GDP on return is 0,000. This result is smaller than the value $\alpha = 0.05$ (significant value of GDP = 0000 < the value of $\alpha = 0.05$). It means that the GDP has a significant positive influence on stock returns.

2) Interest

Significant value of interest rate on return is equal to 0,000. This result is smaller than the value $\alpha = 0.05$ (Interest significant value = 0.000 < α value = 0.05). It means that the interest rate has a significant negative influence on stock returns.

III.2.b. Simultaneous Test (F-test)

To determine whether there is simultaneously influence of independent variables (GDP and Interest rate) on the dependent variable (stock return) , this study used F-test.

Table 3.4

Results of the F-test value

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.091	2	.045	37.676	.000 ^a
	Residual	.087	72	.001		
	Total	.177	74			

a. Predictors: (Constant), Interest, GDP

b. Dependent Variable: Return

Source : Data Processed with SPSS 17.

From table 3.4 above, significant F values obtained is 0,000 . This result is smaller than the value $\alpha = 0.05$ (significant value of F = 0.000 < α value = 0.05). It means that theGross Domestic Product (GDP) and Interest rate together (simultaneous) have effect on stock returns.

III.2.c. Coefficient of Determination .

Tabel 3.5

The results of calculation of coefficient of determination

Model Summary^b

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.715 ^a	.511	.498	.034667

a. Predictors: (Constant), Interest, GDP

b. Dependent Variable: Return

Source : Data Processed with SPSS 17.

From the table 3.5 above : R^2 is 0,511 or 51.1%. This suggests that the 51.1% stock return variation can be explained by the independent variable(Gross Domestic Product -- GDP and interest) while the remaining 48.9% influenced by other factors that are not revealed in this study.

IV. Discussion

From table 3.1 The results of this regression model indicates excess return variable has a positive influence and significant on stock returns. It means that the higher the excess return market the higher the stock return and the market more confidence on the prospects of the company. It will be an attractive for investors to buy it. And demand for these shares will go up, then push the stock price rises. It can be concluded that the higher the excess return will contribute to the higher return of the stock, or vice versa. These findings support the results of studies of Candra Gancar Premananto and Muhammad Madyan doing research in 2004 showed that the excess return is positive and significant effect on the stock return. Based on the results of this study excess market returns can be used as predictors in predicting stock returns. Of course besides that, the investors in predicting return also pay attention to the performance of the company (issuer, including its risk) and macro-economic condition.

This research found only 21,8% stock return variation which can be explained by variations in the independent variable (excess return market), and 78.2% while the rest is influenced another factors that are not revealed in this study. In addition, investors should also consider other factors beyond the company's policies such as economic, social, political, national security, natural disasters happening everywhere and bombings in various places as a cause of lack of confidence of foreign investors to invest on companies in Indonesia

From table 3.3, The results of this regression model indicates the direction of the effect of each independent variable consisting of GDP and Interest rate on the dependent variable (stock returns). GDP has a positive influence on stock returns, while Interest rate has a negative effect on stock returns. It means the higher the value of GDP indicates the share price increases. If the stock price increases, so the stock return is also increase. So the higher the GDP, the higher stock return and it will be an attractive for investors to buy it. And demand for these shares will go up, then push the stock price rises. It can be concluded that the higher GDP will contribute to the return value is higher or vice versa if the lower GDP will contribute to the value of the lower stock returns. These findings support the results of research by Delly to determine the comparative accuracy between the CAPM and APT models in predict stock returns in the period 2001-2006. This research shows that the Gross Domestic Product (GDP) has positive and significant impact on return. Based on the results of this study, GDP can be used as a predictor in predicting stock returns.

From table 3.3 we found that interest rate has negative effect on stock returns. It means that the lower the interest rate the stock price is increasing. If the stock price increases, indicating that the stock is increasingly in demand by investors. So that the lower the interest, the higher the level of confidence on the prospects of the company, it will be an attraction for investors to buy it. And demand for these shares will go up, then push the stock price rises. It can be concluded that the lower the interest will contribute to the return value is higher than before or vice versa. These findings support the results of research by Delly to determine the comparative accuracy between the CAPM and APT models in predicting stock returns in the period 2001-2006. This research shows that interest rate has a significant negative effect on the return. Based on the results of this study, Interest rate can be used as predictors in predicting stock returns.

IV. Concluding Remarks

Based on the results of research and discussion in the previous section, it can be concluded as follows:

- a) Statistically, both in CAPM and APT model, stock return is significantly influenced (partially or simultaneously) by its independent variable (in CAPM: market excess return; in APT is GDP and Interest rate).
- b) Viewed from the adjusted coefficient of determination (adjusted R^2), the accuracy of the results of model calculations with the Arbitrage Pricing Theory (APT) is better than the results of model calculations with Capital Asset Model (CAPM) in predicting stock returns. Because the market excess return is able to explain the variation in stock return only 21.8% (in the CAPM model). While the variable Gross Domestic Product (GDP) and Interest rate on Arbitrage Pricing Theory Model (APT) is able to explain the variation in stock returns 51.1%. In this study, APT model is better and more accurate model than the CAPM model in

predicting stock returns.

The suggestions for further research are as follows:

Both models can be used to predict stock returns. However, from the accuracy and validity, it should be better advised to use the APT rather than CAPM model as if seen from the adjusted coefficient of determination (R^2), APT models are better able to explain the variation in stock returns is higher than the CAPM model.

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