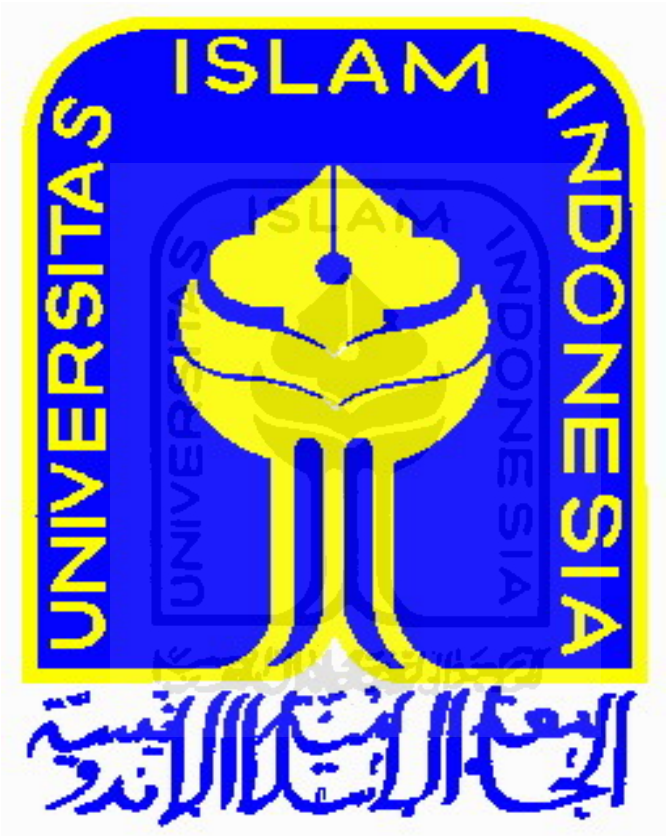
UNIVERSITAS ISLAM INDONESIA
الجامعة الإسلامية الإندونيسية

THE EFFECT OF ERP IMPLEMENTATION TO THE USEFULNESS OF ACCOUNTING INFORMATION

(STUDY CASE IN INDONESIAN COMPANIES)

THESIS

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INTERNATIONAL PROGRAM

FACULTY OF ECONOMICS

UNIVERSITAS ISLAM INDONESIA

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THE EFFECT OF ERP IMPLEMENTATION TO THE USEFULNESS OF ACCOUNTING INFORMATION

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A THESIS

Presented as a Partial Fulfillment of the Requirements to obtain Bachelor Degree
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A BACHELOR DEGREE THESIS

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DECLARATION OF AUTHENTICITY

Herein I declare the originality of this thesis, I have not presented anyone's work to obtain my university degree, nor have I presented anyone else's words, ideas or expression without acknowledgement. All quotations are cited and listed in the references of the thesis.

If in the future this statement is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, January 25th, 2012

Hutomo Prabowo Putro

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ABSTRACT

ERP systems have become the most popular system for the majority of publicly traded companies and have radically changed the way accounting information is processed, analyzed, audited, and disseminated. In this research, the researcher examine the reliability and relevancy of accounting information of a company. The reliability and relevancy are closely related to practical discretionary accruals that have bad and good side effects for stake holders and institution who concern with the financial report. The data in this research are come from 26 sample firms, which registered in Indonesian capital market directory, after implement Enterprise Resource Planning (ERP) program.

The result of this research stated that the implementation of ERP could decrease the reliability of accounting information because there is an increasing value of discretionary accrual that exist in financial report. Then the second result is the implementation of ERP could increase the relevancy of accounting information because the total time that needed to post the financial report is shortened. It means that before the ERP program implementation, the financial report process take a longer time to accomplish, but after the program went live the report process is faster. Because of that, the financial report can be posted early than Fix Year End. Moreover the value of Earning per Share also increases.

Key Word: ABSDA, LAG, reliability and relevancy

ABSTRAKSI

Sistem ERP telah menjadi sistem yang paling populer bagi kebanyakan perusahaan dagang publik dan telah merubah secara drastis pandangan terhadap informasi akuntansi yang sedang diproses, dianalisis, diaudit dan di sebarluaskan. Di dalam penelitian ini, peneliti meneliti tentang reliabilitas dan relevansi dari informasi akuntansi. Reliabilitas dan relevansi sangat berkaitan dengan praktik penggunaan diskresionari di dalam laporan keuangan, dan mempunyai efek buruk dan baik bagi para pemegang saham dan institusi yang menaruh perhatian pada laporan keuangan tersebut. Data yang digunakan di dalam penelitian ini berasal dari 26 sampel perusahaan yang telah mengimplementasi ERP dan telah terdaftar di direktorat pasar modal Indonesia.

Hasil dari penelitian ini menyatakan bahwa pengimplementasian ERP dapat menurunkan tingkat realibilitas dari informasi akuntansi karena terdapat peningkatan nilai diskresionari akrual di dalam laporan keuangan. Kemudian hasil yang kedua adalah bahwa pengimplementasian ERP dapat tingkat relevansi di dalam informasi akuntansi karena total waktu yang dibutuhkan oleh perusahaan untuk menerbitkanlaporan keuangan semakin singkat. Ini berarti bahwa sebelum pengimplementasian ERP, proses untuk penerbitan laporan keuangan memerlukan waktu yang lebih lama, tetapi setelah diterapkannya ERP waktu untuk menerbitkan laporan keuangan menjadi lebih singkat. Jadi laporan keuangan dapat di terbitkan lebih cepat dari akhir tahun pelaporan. Selain itu nilai harga per lembar saham perusahaan juga mengalami kenaikan.

Key Word: ABSDA, LAG, reliability and relevancy

CHAPTER 1

INTRODUCTION

1.1 Study Background

Nowadays, business competition is becoming more complex. Companies will seek to increase their customers by providing services which is fast yet low cost than any other competitors. One of the methods to accomplish that kind of objective is by integrating the information systems within the firm, because the improvement of information system's efficiency could create an efficient management in business processes (Tarigan, 2006). Many evidences, both theoretically and empirically, indicate that, companies that successfully implement information technology to support strategies gain superior financial performance (Nicolaou, 2004).

In order to answer the demand of companies to implement information systems technology in their company, some software vendors offer Enterprise Resource Planning (ERP) technology. ERP technology is able to integrate the function of marketing, production, logistic, financial, resources, and also the other functions. ERP has been developed as a tool of integration, that aims to integrate all companies' application into the data storage centre which can easily be accessed by the person or department in need (Tarigan, 2006). Tarigan (2006) also stated that data integration in ERP technology can be executed by single data entry (one of

departments input the data, and then the data can be utilized by the other departments within the company).

Most ERP software implemented by companies worldwide are provided by the top five application vendor packages, they are SAP, PeopleSoft, Oracle, Baan, and J.D. Edwards (Poston and Grabski, 2001). Among those five-largest ERP software vendors, SAP is currently leading the market to three reports from Gartner Dataquest (2005)

This continuing trend to implement SAP within a company is because it offers several advantages. Many firms that implement SAP have a reason to reduce redundancy inconsistency in data through the creation and maintenance of a central database of corporate information (Poston and Grabski, 2001). With ERP software provided by SAP, errors could be reduced and employees have access to current information for decision-making. ERP systems are also expected to reduce labor costs, bureaucracy, and errors (Poston and Grabski, 2001) since its architecture can facilitates integration across different applications (i.e., information sharing across business processes) supporting concurrent and automatic updates, without the need for manual intervention (Poston and Grabski, 2001). Given the advantages of ERP features provided by SAP, companies which are implementing it should experience an overall reduction in cost and a general improvement in decision-making activities.

The ERP has become the best system that has been chosen by the majority of companies in Indonesia and lastly, ERP also has changed the

way accounting information is processed, analyzed, audited, and disseminated for the company that implement ERP. And we should realize that, by implementing ERP, it does not guarantee that the company will gain the exact benefit (from that), because, everything are depends on the effort of the company itself. Furthermore ERP also has limitation beside its famous benefit that has been known. In this research, the researcher will examine "The Impact of implementing ERP system in companies that have given influence to the usefulness of accounting information.

Based on previous research that has been done by Brazel and Li Dang (2005), has found some hypothesis that ERP adoptions lead to a trade-off between increased information relevancy and decreased information reliability for external users of financial statements. After implementing the system, company concurrently experiences both a decrease in reporting lag and an increase in the level of discretionary accruals. This result should be the interest to prepare a financial statement by adopting or implementing new versions of ERP applications, auditors serving clients with ERP systems, and regulators overseeing the financial markets and consolidation in the ERP industry.

This research is a replication from previous research that is made by Joseph F Brazel and Li Dang (2005). The difference between this research and the previous research, is if the previous research uses the US company and FASB as a supporting guideline, this research will use the Indonesian company listed on bei and off course will use PSAK as the supporting

guideline. More over in this research, the researcher wants to know further whether by implementing ERP will make companies have an increasing information relevancy and decreasing in information reliability. In this research, the researcher also will show some statement or rules that exist in PSAK to support the hypothesis above. Finally, the researcher wants to propose a thesis entitled **"THE EFFECT OF ERP IMPLEMENTATION TO THE USEFULNESS OF ACCOUNTING INFORMATION" (STUDY CASE IN INDONESIAN COMPANIES)**

1.2 Problem Formulation

The researcher would like to examine how far the ERP system implementations in a company have given influence on usefulness of accounting information. Furthermore the researcher also has some hypotheses that need to be proven. That hypotheses is "that ERP implementations simultaneously decrease the reliability and increase the relevancy of accounting information for external users. Therefore the problem formulated as follows:

1. Does the ERP implementation simultaneously decrease the reliability of accounting information?
2. Does the ERP implementation simultaneously increase the relevancy of accounting information?

1.3 Problem Limitation

The researcher would like to set a limitation of research area in order to be more focus in this research.

1. Reliability of accounting information can be measured by using a Discretionary Accruals or Absolute Value of Discretionary Accruals (ABSDA). The ABSDA consist of: Total Asset, Operating Cash Flow, Leverage and Market to book value. And use regression analysis with limitation of years, 3 years before SAP implementation and 3 years after SAP implementation.
2. In relevancy of accounting information, the researcher will examine the timeliness component of accounting information relevancy. Thus, relevancy of accounting information can be measured by examining the reporting lag (difference between firm's actual earnings announcement date and fiscal year end), and also by doing a regression analysis with limitation of years, 3 years before SAP implementation and 3 years after SAP implementation.
3. This research is an effort to see the portrait of enterprises before and after implemented the ERP program, so classical regression justification is no necessary.

1.4 Research Objectives

Based on what have been explained in the background of this research, and in the problem formulation, in this research the researcher has several objectives concerning this research aims at:

1. Examining the effect of ERP implementation within a company, whether it really decreases the reliability of accounting information for external user.
2. Examining the effect of ERP implementation within a company, whether it really increases the relevancy of accounting information for external user.

1.5 Research Contribution

This research is conducted with an expectation that it can give additional scientific benefits and input as well as a new reference for the next research. The result of this research is expected to benefit these following parties:

1. Researcher

   The researcher can implement and apply the knowledge obtained in the university study course as well as finish one of the requirements to obtain the bachelor degree in Economics Faculty (majority in Accounting) Universitas Islam Indonesia.

2. Academic Society

   For the academic society, this research can enrich reference for the next research, especially in Discretionary and non Discretionary subject.

3. Companies

   The researcher expects this research can contribute valuable input toward the managements in making decision for their business.

4. Other Parties

   The researcher expects that this research can be a new source of information or reference in regards to similar or related research tasks in the future.

1.6 Systematic Writing

This research report consists of five chapters which each chapter will discuss and elaborate different topic. The first chapter is an introduction chapter that discusses the study background, problem identification and problem formulation, research objectives, limitation, contribution, and systematic writing.

Next chapter will provide the review of related literature in this research. The researcher will provide related literatures which explain about SAP, ERP, Reliability of accounting information, and Relevancy of accounting information. This chapter also includes explanation existing prior studies and also the hypothesis formulation.

The third chapter will present the detail of research method used in this research. It will cover the information of population and sample, types of data, data collecting method, research variable, and also data analysis method.

All the processes to elevate the data will be discussed in the fourth chapter. This chapter will also present the result of hypothesis testing along with the data analysis.

The last chapter will discuss the conclusion the researcher drawn from this research according to the data analysis. Finally, this fifth chapter will include the recommendation from the researcher for any parties concerned with this research and for the possible future research.

CHAPTER II

REVIEW OF RELATED LITERATURE

In this chapter, the researcher will continue the discussion through providing the review of related literature in this research. This chapter will present related literatures which explain about SAP, ERP, Reliability of accounting information, Relevancy of accounting information, and any other explanation that is related to the topic of this study. Any existing prior studies as well as the hypothesis formulation are also included in this chapter.

2.1 Enterprise Resource Planning (ERP)

The Enterprise Resources Planning (ERP) technology provided by SAP can integrate all functions in a company such as, marketing, production, logistic, finance, resources, etc. ERP is specifically developed as a tool of integration in order to integrate all company's applications into a core database which is accessible for any party who need the information. The data integration in ERP technology is executed by single data entry, which means that if one department enters the data, then this data can be utilized by the other departments within the company (Tarigan, 2006).

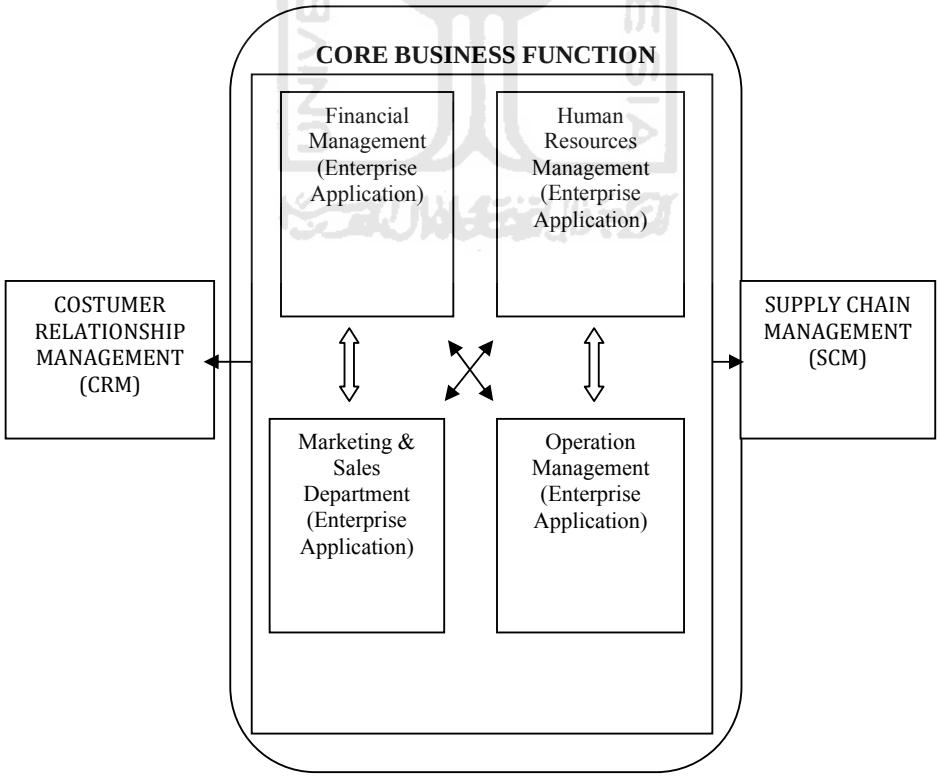
ERP is a way to manage company's resources by utilizing the information technology. The use of ERP which complemented with the hardware and software are employed in order to coordinate and integrate the data information on each of business processes area to produce a quick

decision-making because the ERP system can provide financial analysis and statement quickly, timely sales report, as well as production and inventory report (Tarigan, 2006).

Based on the explanation above, the researcher can tell that some of information systems are designed separately, so it is hard for the management of a company to take an important decision. Thus, systems that can integrate all of information system are needed. Nowadays this system is well known as ERP. For better illustration can be seen in the figure 2.1

Figure 2.1

ERP software as an integrator across Information System



Source: Putri, V. N. (2010)

By this figure, it can be seen that ERP software can integrate all the information systems that exist inside the company. In order the company can be successful in implementing ERP, three basic requirements should be met, stressed by Wagle (1998):

1. A clear business objective
2. Comprehension of the nature of changes
3. Understanding of the project risk.
4. Strong leadership
5. Constant watch to budget

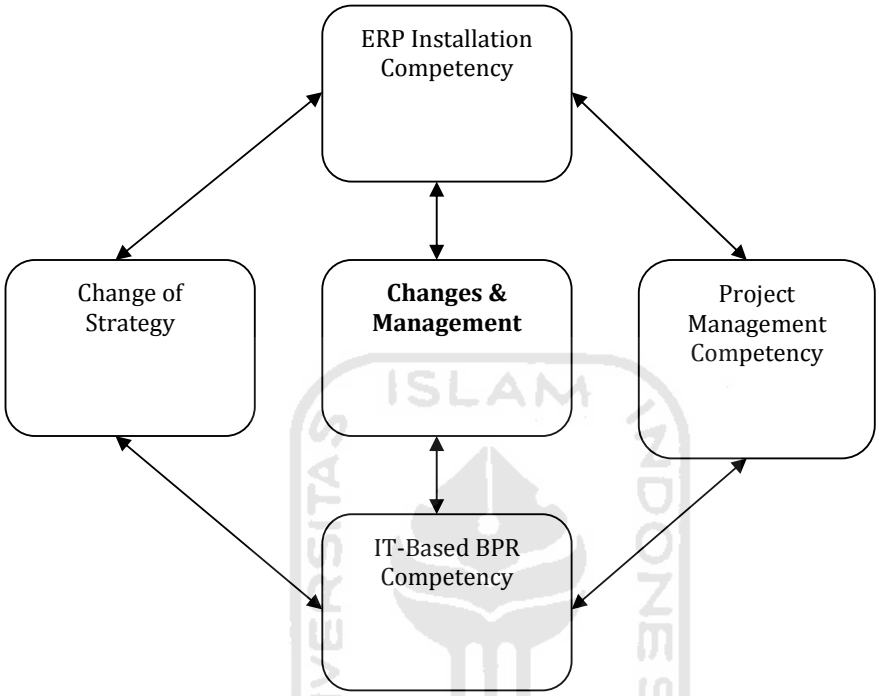
For effective implementation of an ERP system, particularly SAP R/3, an organization must take a holistic view of the process (Al-Mashari and Zairi, 2000). Various issues at strategic, managerial, and operational levels should be addressed in order to achieve optimum outcomes from an ERP system.

Furthermore, for a successful outcome an organization must have established competencies in four core areas: change strategy development and deployment, enterprise-wide project management, BPR integration with IT, and technical aspects of ERP installation. These competencies will enable managers to effectively manage the changes and, thereby, moving the organization to desired goals.

For better illustration can be seen in figure 2.2.

Figure 2.2

Core Competencies in Effective Implementation of ERP



Source: Putri, V. N. (2010)

2.2 SAP

SAP AG or commonly known world-wide as SAP is a multinational software development and consulting corporation, which provides enterprise software applications and support for all sizes of businesses globally. It all began in 1972 when Dietmar Hopp, Hans-Werner Hector, Hasso Plattner, Klaus Tschira, and Claus Wellenreuther, which are former IBM employees, founded SAP that stands for Systemanalyse und Programmentwicklung ("Systems Analysis and Program Development") in Mannheim, Germany. They have a vision to develop and market standard

enterprise software which would integrate all business processes. The second part of their vision was that the data should be processed interactively in real time. (SAP Global, 2009). So, in other words, it can be said that SAP is a software of Enterprise Resource Planning or an IT tools designed by the management with the aim of helping the company to plan and conduct its daily activities. According to the report of Software Top 100 (2009), SAP is the largest software enterprise in Europe and the fourth largest software enterprise in the world. Many customers of SAP have reported the perceived advantages from implementing it. One of the advantages is that the company implementing SAP can perceive an efficiency and effectiveness within its internal operation.

To satisfy the costumer (user), SAP did not make their ERP software directly to become the finish product and release it the market. But they make this ERP software, step by step and through the deep research and many of development that occurred in the process of making this product. The purpose is simple, SAP want its product to become the best enterprise software, that is easy to use, effective, efficient and also suitable for all condition of the company that implement this software. Based on the explanation before, we can see the process that has been done by SAP, to make their product better. ERP system is a software that integrates all of the applications that needed by the company, starting from finance, controlling, purchase, distribution, and so forth, in a server called SAP ERP 6.0 (its predecessor widely-known as R/3). Before the latest version

of SAP ERP 6.0 generation, it had been through the phase of R/1, R/2, and R/3 (SAP Global, 2009). SAP can be considered as the biggest ERP vendor since its revenue is far higher compared to its other rivals such as Oracle or Microsoft (Gartner Dataquest, 2005).

As the fourth largest software enterprise in the world, SAP can be considered leading the market of ERP software since it is the first company that created software integrating all of the operational functions within a company. Based on the research that had been done by the researcher, despite the entire success story of SAP, until this day, there are many companies in Indonesia that are still not interested in implementing SAP. The price of implementation SAP software that should be paid by a company that wants to implement SAP is relatively high. Not only the price of software that company should pay, any company that want to implement SAP, also has to pay the cost of SAP consultant that is obviously also very expensive. I think, these things might be the reasons why there are some companies in Indonesia that still do not want to implement SAP.

2.2.1 The Success story of SAP in Indonesia

SAP entered the Indonesian market since 1995 through the rapid growth of SAP Singapore led by Krish Datta, the managing director who is appointed to infiltrate the Indonesian market. Then in 1997, PT. SAP Indonesia was officially established. More than 32,000 customers in more than 120 countries implement not less than 84,000 installation of software

provided by SAP. SAP provided variant of solution depending on the needs of individual businesses, starting from small to mid-size companies until the big scale companies and global organization. SAP defines its software of business solution into Enterprise Resource Planning (ERP) and the other interrelated software solutions such as Supply Chain Management, Customer Relationship Management, Product Lifecycle Management, and Supplier Relationship Management (Wulandari, 2006).

Numerous reputable companies in Indonesia from various industries such as Astra Honda Motor, Indosat, Telkomsel, Timah, Metrodata Electronics, Holcim Indonesia, Pertamina, and so forth, have also adopted SAP within their companies. SAP also provides various products for various sizes of the companies, for instance SAP Business One (SBO) is widely used by small to mid-size companies while SAP ERP 6.0 or SAP R/3 are generally used by big-scale companies (Reinandang, 2007).

Nowadays, throughout SAP University Alliance Program, PT. SAP Indonesia cooperates with four well-known public universities (f.i Universitas Gajah Mada, Universitas Indonesia, Institut Pertanian Bogor and Institut Teknologi Bandung) beside the 6 other universities that had cooperated with SAP before (f.i Universita Bina Nusantara, Universitas Ciputra, Universitas Islam Indonesia etc). Therefore, the total number of universities joining the SAP University Alliance Program is 10 universities.

2.3 Reliability of Accounting Information

Accounting information is reliable to the extent that users can depend on it to represent the economic conditions and events it purports to represent" (FASB 1980, p 62), and emphasizes three characteristics of reliability - representational faithfulness, verifiability, and neutrality. According to PSAK (2009), reliability of accounting information means that the ability of accounting information to give the faithfulness that the received information is valid / right. The information has a very high value if the user also has a high faithfulness to that information.

Verifiability implies a consensus among different measurers. Represent faithfulness exists when there is agreement between a measure or description and the phenomenon it purports to represent. Neutrality is highly related to the establishment of accounting standards. Moreover, accounting standards should be established with overall societal goals and specific objectives in mind and should try not to favor particular groups or companies, or in other words we can say that "Accounting standards should not favor any particular groups or companies nor influence behavior in any specific way". So, the degree of reliability of accounting information is inherent in the information itself, independent of the use of that information.

Laureen A. Mainez and James M. Wahlen, (2003) mentioned some factors that affecting reliability in accounting information:

1. Random factors that affect the future period cash flows;

2. Errors in accounting information as proxies for economic constructs; and
3. Errors made by users in specifying the relation between current accounting information and future cash flows.

2.4 Relevancy of Accounting Information

According to PSAK (2009), relevancy of accounting information means that the ability of accounting information to assist / help the user to differentiates some of alternative decision, so at the end the user can easily determine their decision.

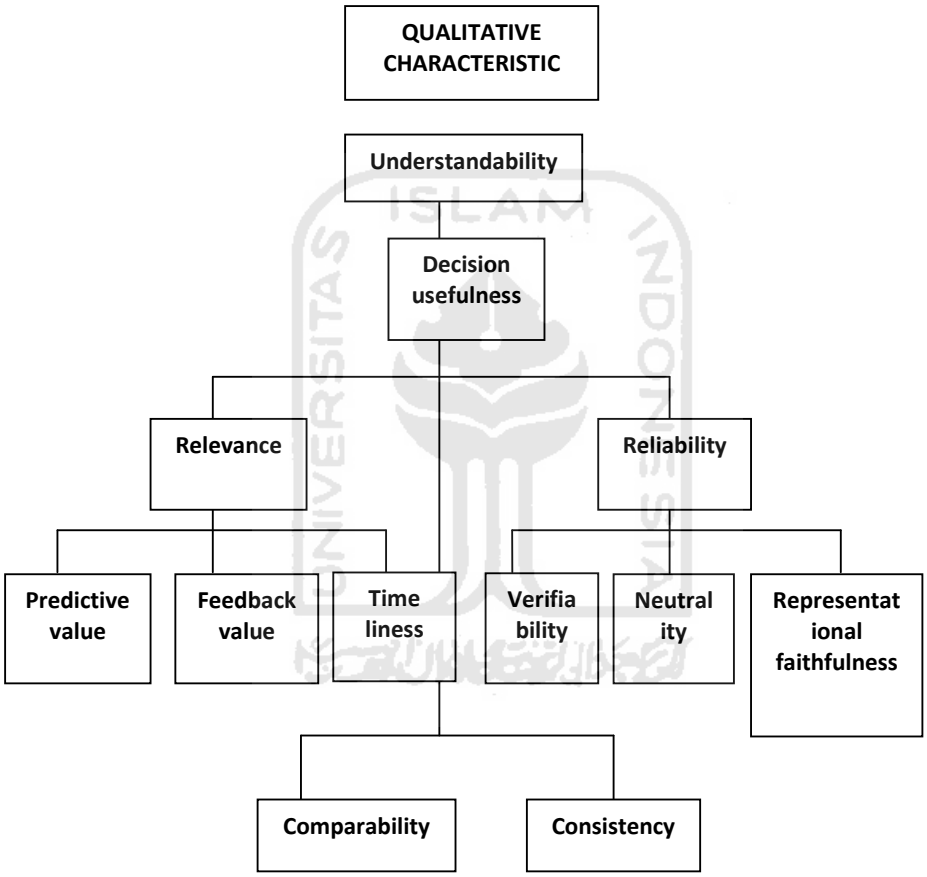
To make a difference in the decision process, information must possess predictive value and feedback value. Generally, useful information will possess both qualities. This predictive ability is central to the concept of "earnings quality," the ability of reported earnings (income) to predict a company's future earnings.

In order to have relevance, accounting information must be timely. Financial statements issued three weeks after the accounting period ends will have more relevance than financial statements issued several months after the period ends. Having timeliness and relevance may mean sacrificing some precision or reliability. Information is timely when it is available to users early enough to allow its use in the decision process. The need for timely information requires the companies to provide information to external users on a periodical basis, because information is timely if it is available to users before a decision is made.

For better illustration in understanding reliability and relevancy of accounting information can be seen in figure 2.3.

Figure 2.3

Hierarchy of Desirable Characteristic of Accounting Information



Source: Mainez, A.L., Wahlen, J. M. (2003)

Relevance and reliability are two of the four key qualitative characteristics of financial accounting information. Relevance requires that the financial accounting information should be matched with the user

needs and it is expected to affect their decisions. Reliability requires that the information should be accurate, true and fair.

2.5 The Usefulness of Accounting Information

Accounting provides companies with various pieces of information regarding business operations. Business owners often review this financial information to determine how well their business is operating. Accounting information can also provide insight on growing or expanding current business operations. There are some usefulness of accounting information for a company:

1. **Performance Management**

   A common use of accounting information is measuring the performance of various business operations. While financial statements are the classic accounting information tool used to assess business operations. Financial ratios use the accounting information reported on financial statements and break it down into a leading indicators. These indicators can be compared to other companies in the business environment or an industry standard. This helps business owners understand how well their companies operate compared to other established businesses.

2. **Create Budgets**

   Business owners often use accounting information to create budgets for their companies. Historical financial accounting

information provides business owners with a detailed analysis of how their companies have spent money on certain business functions. Business owners often take this accounting information and develop future budgets to ensure they have a financial road map for their businesses.

3. Business Decisions

Accounting information is commonly used to make business decisions. Decisions may include expanding current operations, using different economic resources, purchasing new equipment or facilities, estimating future sales or reviewing new business opportunities. Accounting information usually provides business owners information about the cost of various resources or business operations. These costs can be compared to the potential income of new opportunities during the financial analysis process. This process helps business owners understand how current business operations will be affected when expanding or growing their businesses.

4. Investment Decisions

External business stakeholders often use accounting information to make investment decisions. Banks, lenders, venture capitalists or private investors often review a company accounting information to review its financial health and operational profitability. This

provides information about whether or not a small business is a wise investment decision. Many small businesses need external financing to start up or grow.

2.6 Existing Prior Studies

This research is a replication of the previous research. This research, based on previous research that is done by Joseph F Brazel and Li Dang "The Effect of ERP Implementation on the Usefulness of Accounting Information (2005). Brazel and Dang, in their research have found some hypothesis that ERP adoptions lead to a trade-off between increased information relevancy and decreased information reliability for external users of financial statements. After implementing the system, company concurrently experiences both a decrease in reporting lag and an increase in the level of discretionary accruals.. This result should be the interest to prepare a financial statement by adopting or implementing new versions of ERP applications, auditors serving clients with ERP systems, and regulators overseeing the financial markets and consolidation in the ERP industry.

This research is replication from previous research, because of that there are some differences between this research and previous research. The differences between my research and previous research, if the previous research uses the US company and use the FASB as a supporting guideline, this research will use the Indonesian company and off course will use PSAK edition July 2009 as the supporting guideline. More over

the researcher purpose in this research is to prove the Brazel and Dang hypotheses in Indonesian companies, whether implementing ERP will make company has an increase in information relevancy and decreasing in information reliability.

2.7 Hypothesis Formulation

In the practice, a company has financial statement audit and internal control, and in the process managerial opportunities are kept in check and in the return, the company provides a financial statement to the user that are representationally faithful and reliable. Moreover, internal controls over financial reporting are defined as "a process to provide a reasonable assurance regarding the reliability of financial reporting. Doyle et al. (2005) conclude that the internal control reporting standards provide the external users with information regarding the reliability of financial statements.

However recent research indicates that these determining factors to reliability may be impaired in an ERP system setting. Following an ERP system implementation, the opportunity to manage financial accounting information may increase due to enhanced managerial information access/control and reductions in the determining factors of audit quality and internal control effectiveness.

Policy makers (AICPA 2002) state that opportunity is a critical component affecting whether managers actually do indeed manage accounting information to report financial results that meet their

objectives, but do not reflect the true financial condition of the firm. And then, the representational faithfulness and, in turn, the reliability of accounting information may be impaired following ERP system implementations.

In their research, Brazel and Dang (2005), have their first hypothesis:

H_1: ERP system implementations decrease the reliability of accounting information

Furthermore, based on the theory above, the researcher will use Brazel and Dang (2005) hypotheses. However, the researcher has to test this hypothesis on Indonesian companies as the object of research and trying to prove this hypothesis and theory properly.

Therefore the researcher wants to test the first hypothesis:

H_1: ERP system implementations decrease the reliability of accounting information

The other benefit of ERP system implementations that is citied by Poston and Grabski (2001) is improved efficiencies through computerization. From the perspective of financial accounting information, this indicates a reduction in the financial reporting cycle for ERP system adopters.

A reduction in the length of the reporting cycle should allow adopters to provide financial statements to external users in a more timely fashion and, in turn, increase their relevancy.

Studies examining the timeliness of earnings indicate that firms publish financial reports earlier when they have "good news." For example, Givoly and Palmon (1982) define "good" and "bad news" via an earnings expectation model and their results suggest "bad news" reports tended to be delayed. Chambers and Penman (1984) find positive (negative) abnormal returns for firms that report their financial statements earlier (later) than expected. Regarding with these studies, Whittred (1980) and Keller (1986) show that firms delay the reporting of financial statements when they have received a qualified audit opinion. Lastly, Graham et al. (2004) find recent evidence that suggests firms intentionally delay releasing bad news to investors until after trading hours or until later in the week.

The scope of these studies are firms that appear to strategically determine the timeliness of their financial accounting information and firms that provide "good news" to external users have incentives to shorten the time lag between their fiscal year-end and reporting date. As previously discussed, expectations and suggestions that ERP system adoptions have to enhance management's ability to provide more timely, and thus more relevant, accounting information to external users.

Moreover, Brazel and Dang (2005) conclude that, for firms with incentives to disclose timely accounting information ("good news" firms), ERP system implementations should positively affect the relevancy of their accounting information for external users.

Furthermore, Brazel and Dang (2005) develops their second hypothesis:

H_2: ERP system implementations increase the relevancy of accounting information.

Based on Brazel and Dang (2005) theory, the researcher will use their hypothesis as the researcher hypothesis. The researcher will use this hypothesis on the Indonesian company as the object of the research and try to prove this hypothesis and theory properly.

Based on theory above, the researcher has the second hypothesis:

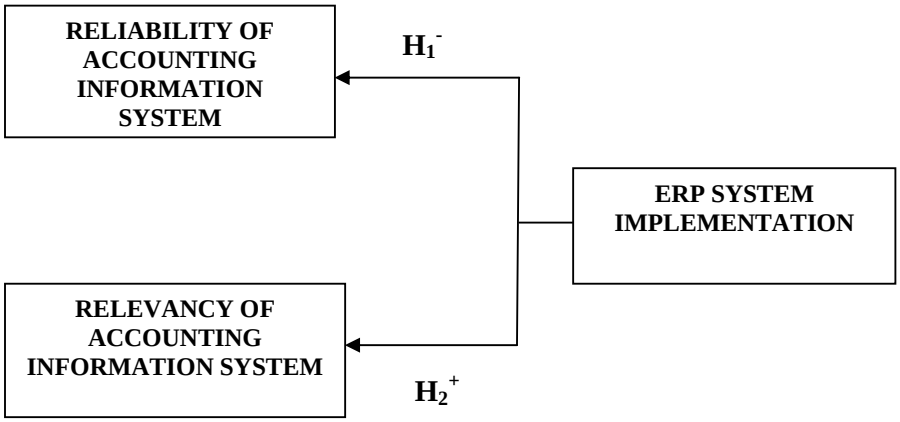
H_2: ERP system implementations increase the relevancy of accounting information.

2.8 RESEARCH MODEL

Based on hypotheses above, graphically, that hypotheses can be draw like can be seen in figure 2.4.

Figure 2.4

Research Model



CHAPTER III

RESEARCH METHOD

As stated previously in the study background, this research was conducted as a replication of journal by Joseph F Brazel and Li Dang "The Effect of ERP Implementation on the Usefulness of Accounting Information" (2005). However, this research employed a longer time horizon in analyzing the ERP implementation's effect on the usefulness of accounting information. In this research, the researcher used three years analysis of ERP implementation within the sample company (Indonesian companies) and with the range of 10 years (2000 – 2010). The researcher used the Brazel and Dang hypothesis, with study case in Indonesian companies, not in US company like in Brazel and Dang's (2005).

The detail of research method used in this study will be the main discussion in this chapter. It will cover the information of population and sample, types of data, data collecting method, research variable, and also data analysis method.

3.1 Population and Sample

3.1.1 Population

The populations in this research were public companies in Indonesia which have implemented SAP. The researcher had conducted some investigations by contacting PT. SAP Indonesia and Indonesia Capital Market Directory (ICMD) in order to find the population needed in this research. The result of the investigation showed that there are 386 public companies as population in this research. The selection of Indonesian

Stock Exchange (IDX) as a research medium is for the reason that Indonesian Stock Exchange has a quite comprehensive data regarding the financial statement of the public companies. The consideration of why the researcher chose the public companies listed in Indonesian Stock Exchange which have implemented SAP within the companies is that because the researcher expected this research could contribute additional information for investors in the stock market.

3.1.2 Sample

The sample in this research is the chosen part of the population which fulfils the criteria settled by the researcher. The sampling method used in this research is the purposive sampling method. Purposive sampling method is a method by obtaining information from specific target groups (Sekaran, et al., 2000). With this method, sample is selected because of the similarity between the sample's characteristic and the sample's criteria settled by the researcher. Thus the criteria of research sample for this research are:

1. The public companies listed in Indonesian Stock Exchange and have implemented SAP for minimum 3 years.
2. SAP implementation within the public companies must have finished before December 31st, 2010.
3. The public companies listed in Indonesian Stock Exchange actively published their annual financial statement during the research period 1,2,3 year before and 1,2,3 years after SAP implementation.

4. The annual financial statements per December 31st are available for each public companies in 1,2,3 years before and 1,2,3 years after SAP implementation.

3.2 Types of Data

Data that are used in this research are secondary data obtained by the researcher. Secondary data is information or relevant data acquired from archives, documents, and supported literatures which relate to the topic of this research. Secondary data can be obtained from various sources which have a correlation that would complement the discussion in this research.

These data could be in the form of numbers or information and documentation from the public companies sample. In regard to this research, the researcher will only use the data related to company's financial condition. The following are list of data that will be used by the researcher:

1. List of public companies which have finished implementing SAP.
2. Annual financial statements and Indonesian Capital Market Directory published by Indonesia Stock Exchange from the public companies listed in Indonesian Stock Exchange for the period 1,2,3 year before and 1,2,3 years after SAP implementation

This research used quantitative data. Quantitative data is the data in the form of numbers or amount which is definite in its characteristic. These kinds of data have a continuing characteristic, such as body height, area

width, profit, number of assets, and so forth. These quantitative data can be analyzed through statistical approach (Hadi, 2006).

3.3 Data Collecting Method

Method of collecting data in this research is by searching of related documentations. Researcher obtained and collected the data from Indonesia Stock Exchange corner in Economics Faculty of Universitas Islam Indonesia, in order to obtain the companies' annual financial statement and also company profile.

The data investigation through interview is obtained by contacting the officer in SAP Education office Economic Faculty of Universitas Islam Indonesia and in Indonesia Capital Market Directory (ICMD). This was done in order to obtain the list of public companies implementing SAP and listed in Indonesia Stock Exchange. The result, is the researcher finally found the list of 386 companies that had implemented SAP. Unfortunately the data about when the public companies start to implement SAP is not included on the information researcher gets. So, facing these problems, the researcher decided to advance the research. To get the data of implementation year of the company is done by opening the website of the listed company and by contacting Mr. Hadi. Mr.Hadi is the account manager of PT. SAP Indonesia. The researcher got his contact, by contacting Mr. Yunan Najamudin. Mr. Yunan Najamudin, is one of the lecturers in Economic Faculty of Universitas Islam Indonesia. By these kinds of investigation, the researcher finally gained the data of

implementation year of 26 companies. After the researcher obtained the list of 26 companies, then the researcher continued the research by visiting Indonesian Capital Market Directory (ICMD) to get the company profile and company financial data.

3.4 Research Design

Biased financial statements would indicate a low level of reliability. Prior literature (e.g., Frankel et al. 2002) has used the magnitude of discretional accruals as evidence for biased financial statements. Sloan (1996) also argues that the accrual component of earnings provides relevant information but reliability is compromised. Doyle et al. (2005) show that material weaknesses in internal control decrease the reliability of financial reporting, which they measure through earnings quality/discretionary accruals. Lastly, Francis et al. (2005) and Rusmin et al. (2005) measure the effects of auditor specialization, which should affect the reliability of financial statements, with discretionary accruals. Previous research (e.g. Becker et al. 1998) has used the absolute value of discretionary accruals to measure managers' discretionary use of accounting information. In this study, accounting information reliability is measured by the absolute value of discretionary accruals, with greater values indicating less reliable information.

This research is an effort to prove two hypotheses that has been stated in earlier chapter. The *first* hypothesis is *ERP system implementations*

decrease or increase the reliability of accounting information. This hypothesis is to prove reliability of accounting information.

Accounting information must be timely and have predictive and/or feedback value. In this study, we examine the timeliness component of accounting information relevancy. So, to test whether timeliness changes before and after implementations, the researcher ran regression analysis using panel data covering from three years before the first year of ERP installation to three years after the system went live. The dependent variable is reporting lag, so the *second* hypothesis is: *ERP system implementations increase the relevancy of accounting information*. This hypothesis is to prove the relevancy of accounting information.

3.4.1 Reliability Test

Reliability is the quality of information that assures that it is reasonably free from error or bias and faithfully represents what it purports to represent. Therefore, the information must free from bias financial statements that leads to misleading conclusion. In this study, accounting information reliability is measured by the absolute value of discretionary accruals, with greater values indicating less reliable information.

Similar to the accrual measure in Bharath et al. (2004) and Hribar and Collins (2002), total accruals, TAC, are calculated as the difference between income before extraordinary item and operating cash flows net of cash flows from extraordinary items scaled by lagged total assets.

Discretionary accruals are estimated using the cross-sectional modified Jones model (Dechow et al, 1995). We run the following regression model for each year within each industry:

$$TAC = \alpha_0 \frac{1}{TA} + \alpha_1 \frac{(\Delta Rev - \Delta AR)}{TA} + \alpha_2 \frac{PPE}{TA}$$

In equation above TAC is total accruals, α_0 is defined as intercept, α_1 and α_2 are defined as coefficient of variables respectively. TA is total assets, which to represent the lagged, TA roles is as divider for the equation. ΔRev is change in net revenues; ΔAR is change in net receivables and PPE is gross property plant and equipment. In modified Jones model (Dechow et al, 1995) equation above is non discretionary when the value is fit. Discretionary accruals, our measure of accounting information reliability, are the absolute value of the residuals of equation

To test whether the level of accounting information reliability changes before and after ERP implementations, this research conduct regression analysis using panel data covering from three years before the first year of ERP installation to three years after the system went live. The dependent variable, ABSDA, is the absolute value of discretionary accruals estimated from the crosssectional Jones model (Dechow et al. 1995).

The variables that might influence the ABSDA, namely control variables. There are company size (LGTA), measured as the logarithm of

total assets, is included to control for size effects. Prior research suggests that leverage (LEV) might be associated with discretionary accruals (DeFond and Jiambalvo, 1994; Becker et al. 1998). As suggested by Zhou and Elder (2001), a firm's market-to-book value (MTB) is a proxy for growth opportunities and may affect discretionary accruals. Lastly, Becker et al. (1998) argue that the firm's operating cash flows also might affect the magnitude of discretionary accruals. Therefore, operating cash flows (OCF) are included in this model.

3.4.2 Relevancy Test

Following prior literature (e.g., Givoly and Palmon 1982), this research uses reporting lag (LAG). LAG is the difference between the firm's actual earnings announcement date and fiscal year-end, as a proxy for timeliness.

To test whether timeliness changes before and after implementations, the researcher runs regression analysis using panel data covering from three years before the first year of ERP installation to three years after the system went live. The dependent variable is reporting lag. As suggested by previous studies (e.g., Patell and Wolfson 1982), firms with good news tend to report their earnings earlier than firms with bad news. Therefore, we specifically test whether the reporting lag for good news firms has shortened after the implementation of the ERP system.

Similar to Haw et al. (2000), the researcher identifies good news firms with the variable ESURP, calculated as the difference between the earnings per share (EPS) in year t and year t-1, scaled by EPS in year t-1.

3.5 Analytical Model

This research will use analytical model to simplify the dependent variable and independent variable for both hypotheses.

3.5.1 Assumption for hypothesis 1:

In order to prove the *first* hypothesis some variables will be implemented in this research: Dependent Variable is discretionary accruals (Absolute Value of Discretionary Accruals / ABSDA). In the other hand, Independent Variables for H_1 are: *aft*, *impyr*, *extent logarithm of total asset (LGTA)*, *leverage*, *market to book value of equity*, and *operating cash flow*. This equation could be written mathematically as follow in equation 3.1:

Equation 3.1

ABSDA Formulation

$$ABSDA = \beta_0 + \beta_1 AFT + \beta_2 IMPYR + \beta_3 EXTENT + \beta_4 LGTA + \beta_5 LEV + \beta_6 MTB + \beta_7 OCF + e$$

In equation 3.1 β_0 is constant, where if for some reason all independent variables are zero, so the value of ABSDA is the constant. The other βs are coefficient for each independent variable in the equation. Variable *e* is error term, which represents all variables that influence the model, but cannot be covered. The error term always appears no matter how much

variables we include (Gujarati, 1988). ABSDA prolongs for or defined as absolute value of discretionary accruals. AFT (dummy variable) is set to one for the years falling after ERP system installation began (t+1 to t+3) and zero for the years falling before the beginning of ERP implementation (t-3 to t=0). *IMPYR* (dummy variable) define as implementation year. *EXTENT* (dummy variable) extension of sap module per year. *LGTA* is logarithm term of total asset. *LEV* is defined as leverage. *MTB* is defined as market to book value. *OCF* is defined as operating cash flow.

3.5.2 Assumption for hypothesis 2:

In order to prove the *second* hypothesis these variables below is implemented. Dependent Variable for H_2 is reporting lag (LAG). Independent Variables for H_2 are: *esurp*, *aft*, *impyr* and *extent*. Mathematically it is written as follow in equation 3.2:

Equation 3.2
Reporting Lag Formulation

$$LAG = \beta_0 + \beta_1 AFT + \beta_2 EXTENT + \beta_3 ESURP + \beta_4 IMPYR + \beta_5 AFT*ESURP + \beta_6 EXTENT*ESURP + e$$

Where, LAG defined as Reporting Lag, *ESURP* define as difference between earning per share / year. ESURP is a variable that calculated as the difference between the earnings per share (EPS) in year t and year t-1, scaled by EPS in year t-1.

3.6 Research Variables

For some reasons these research variables create deferent nature to each company. One of those reasons is Discretionary Accruals (see below for detail). Some independent variables impact negatively to its dependent variable and some of them correlates positively.

3.6.1 Total Accruals

By definition total accruals (TAC) can be formulated as follow:

$$TAC = \frac{(I - EI) - (\text{Cash flows} - EI)}{TA}$$

In equation above the EI is extraordinary item and TA is Total Assets. TAC is counted with this formulation.

ΔRev is difference between revenue in year t and t – 1 and ΔAR is difference between net receivable in year t and t – 1. The formulation is:

$$\Delta Rev = \Delta Rev_t - \Delta Rev_{t-1}$$

$$\Delta AR = \Delta AR_t - \Delta AR_{t-1}$$

PPE or gross property plant and equipment and TA or Total Assets are derived directly from data. The working variables for Total Accruals is complete.

3.6.2 Absolute Value of Discretionary Accruals (ABSDA)

Non-discretionary accruals are calculated as the fitted values of equation discretionary accruals using the cross-sectional modified jones model. Discretionary accruals, are measured from the absolute value of

the residuals of equation total accrual. Mathematically can be formulated as follow:

$DA = absolute(TAC_{observed} - TAC_{counted}) = ABSDA$

For some reasons these working variables create deferent nature to each company. One of those reasons is Discretionary Accruals (see below for detail). Some independent variables impact negatively to its dependent variable and some of them correlates positively.

3.6.3 Total Asset

In financial accounting, assets are economic resources. Anything tangible or intangible that is capable of being owned or controlled to produce value and that is held to have positive economic value is considered as an asset. Simply stated, assets represent ownership of value that can be converted into cash. There are two types of asset, which are tangible assets and intangible assets.

Tangible assets contain various subclasses, including current assets and fixed assets. Current assets include inventory, receivables, prepaid expense, short term investment and cash. While fixed assets include such items as land, building, machines, furniture, and tools

Intangible assets are nonphysical resources and rights that have a value to the firm because they give the firm some kind of advantage in the market place. Examples of intangible assets are goodwill, copyrights, trademarks, patents, and financial assets, including such items as accounts receivable, bonds and stocks. Another important intangible asset is

technology, include program such as ERP and other computer base programs.

Based on the explanation above, it can be summarized that total asset is the sum of all cash, investments, fixtures, equipment, receivables, intangibles, and any other items of value owned by a person or a business entity.

3.6.4 Operating Cash Flow

In financial accounting, a cash flow statement is a financial statement that shows how changes in balance sheet accounts and income affect cash and cash equivalents, and breaks the analysis down to operating, investing, and financing activities. Essentially, the cash flow statement is concerned with the flow of cash in and cash out of the business. The statement captures both the current operating results and the accompanying changes in the balance sheet. As an analytical tool, the statement of cash flows is useful in determining the short-term viability of a company, particularly its ability to pay bills.

The cash flow statement has purpose to:

1. Provide information on a firm's liquidity and solvency and its ability to change cash flows in future circumstances.
2. Provide additional information for evaluating changes in assets, liabilities and equity.

3. Improve the comparability of different firms' operating performance by eliminating the effects of different accounting methods.
4. Indicate the amount, timing and probability of future cash flows

3.6.5 Market to Book Value

Market to Book Value seeks to show the value of a company, by comparing the book value and market value. Book value is calculated from the company historical cost, or accounting value, and market value is calculated from its market capitalization. In other term we can say that Market to Book Value is calculated by dividing the market value (MV) of a company, i.e., the total value of all its outstanding shares, by the value of its tangible assets. For the formulation of Market to Book Value, can be seen in equation 3.3:

Equation 3.3
Market to Book Value Formulation

$$MTB = \frac{MV}{TA}$$

In equation 3.3 MTB is defined as Market to Book Value, it is equal to MV (market value) divided by TA (Tangible assets value).

3.6.6 Reporting Lag

Transparency is a very important component of financial reporting. Companies must disclose anything that might influence the investment

decision of an informed investor. Nothing of consequence may be hidden. One aspect of transparency is timeliness. Timeliness of financial reporting is one of the attributes of good corporate governance. Shareholders and other stakeholders need information while it is still fresh and the more time that passes between year-end and disclosure, the longer of time the information becomes and the less value it has. It can be said in general that it is better to disclose information sooner rather than later, although there are some tradeoffs. Thus reporting lag, is the difference between the firm's actual earnings announcement date and fiscal year end.

LAG = AD – FYE

AD is announcement date and FYE is fiscal year end. This variable represents proxy of timeliness. Before announcement date, the firms make a preparation for financial report. In Indonesia preparation takes place in December and fiscal year end in April. The LAG is in the range between the end of December to April or four month, say it 120 days.

3.6.7 Leverage

Financial leverage ratio is also widely known as a debt to equity ratio. Financial leverage ratio is a ratio that used to calculate the financial leverage of a company to get an idea of the company's methods of financing or to measure its ability to meet financial obligations. In other words, financial leverage ratio is how capable a company in covering their

total liability with using their own capital. Furthermore we can see the formulation of financial leverage ratio in equation 3.4:

Equation 3.4
Financial Leverage Ration Formulation

$$\text{Financial Leverage Ratio} = \frac{\text{Short Term Debt + Long Term Debt}}{\text{Total Shareholders' Equity}}$$

3.6.8 ESURP

ESURP is a variable that calculated as the difference between the earnings per share (EPS) in year t and year t-1, scaled by EPS in year t-1. Mathematically ESURP is defined as can be seen in equation 3.5:

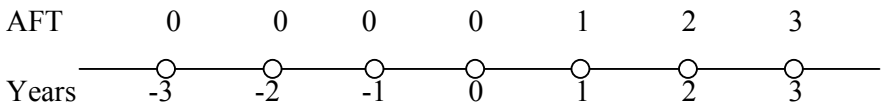
Equation 3.5
ESURP Formulation

$$ESURP = EPS_t - EPS_{t-1}$$

3.6.9 AFT

AFT is a dummy variable, is set to one for the years falling after ERP system installation began (t+1 to t+3) and zero for the years falling before the beginning of ERP implementation (t 3 to t=0).

Graphically the AFT is depicted as follow:

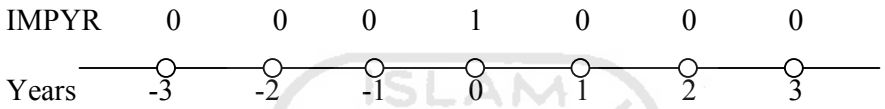


Year 0 is base year where the program is implemented. Say the result is not seen yet.

3.6.10 IMPYR

IMPYR stands for Implementation year. IMPYR is a dummy variable, IMPYR is set to one for implementation year(s) (t=0) and zero otherwise.

Graphically the AFT is depicted as follow:



3.6.11 EXTENT

EXTENT is dummy variable, is set to one (zero) for the extensive (less extensive) implementers. Include in the model to test whether the extent of ERP implementation affects the timeliness of accounting information.

3.6.12 Discretionary Accruals

There are two concepts of accrual; they are discretionary accruals and non discretionary accruals. Discretionary accrual is the recognition of income or expense accruals which are free and are not regulated and is the choice of management policies, while the non-discretionary accrual is the recognition of a reasonable profit accrual

According to the modified Jones model (Dechow, Sloan and Sweeney, 1995) one of the models used to determine quality of earnings (earnings management). Accounting fundamentals are used to separate accruals into

nondiscretionary (normal) and discretionary (abnormal) components. The absolute value of the abnormal component determines the quality of earnings. Larger the absolute value of discretionary accrual, lower the quality of earnings (Dechow et. al., 1995).

Each firm implements the discretionary accruals and non discretionary accruals in a different way. These methods create variance on the research model, and this is what this research step to uncover the usefulness of ERP for the company's performances, especially for Indonesian company.

3.7 Data Analysis Method

The assessment of reliability and relevancy of accounting information in this research will be assessed through descriptive statistic and regression analysis by using t-test. In this assessment process the researcher will use some variables from company financial statement and by comparing 3 years before ERP implementation and 3 years after ERP implementation with the total of data range is 10 years (approximately 2000 – 2010).

3.7.1 Descriptive Statistic

Descriptive statistic is a process of collecting, presenting, and summarizing the characteristics of data in order to describe the data appropriately. Descriptive statistic is used to analyze the data by describing the collected data without making general conclusions. This analysis describes the reliability and relevancy of accounting information using

several variables during 3 years before ERP implementation and 3 years after ERP implementation within the company.

3.7.2 Anova Test

In order to detect the difference between before and after ERP was implemented, this research uses anova or it is usually called *F* test.

Like *t* test that was mentioned before, the *F*test consist of boundaries namely confidence interval 95% and level of confidence 5%. If the *F*value falls around confidence interval, the data are not significant. Otherwise if F value that falls around confidence level, it is plausible that data are significant.

Manually, to test the significance can be compared with table of *F*, with the criteria as follow:

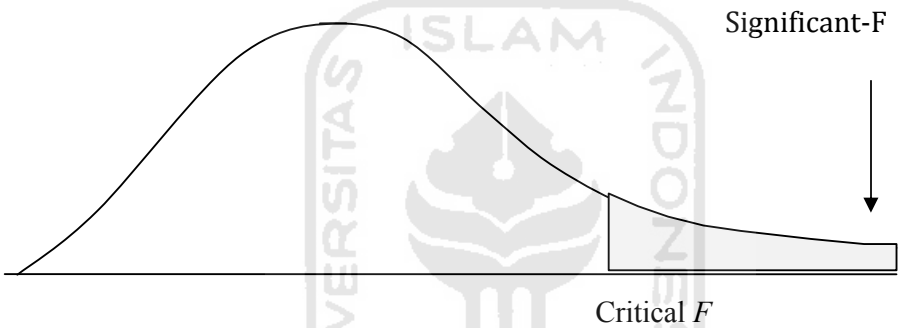
1. If value of $F > F$ table with confidence interval 95% or confidence level 5%, the independent variable is not significantly correlated to dependent variable.
2. If value of $F < F$ table with confidence interval 95% or confidence level 5%, the independent variable is significantly correlated to dependent variable.

ANOVA can be formulated as follow:

$$\text{Fvalue} = \frac{R^2/k}{(1-R^2)/(n-k-1)}$$

In equation above, R2 is defined as Coefficient of Determination, that is how matching the regression to fit the prediction. Value *k* is the number of parameters involve in the model, and *n* is the number of sample.

Like *t* test, the *F* value can be detected graphically. In figure below, all the area of normal *F* distribution is 100%. With confidence level 5% the rejected significance (confidence intervals) is 95%. If the t value falls around 95% so the data are significant, otherwise are not significant.



Source: Gujarati, 1998

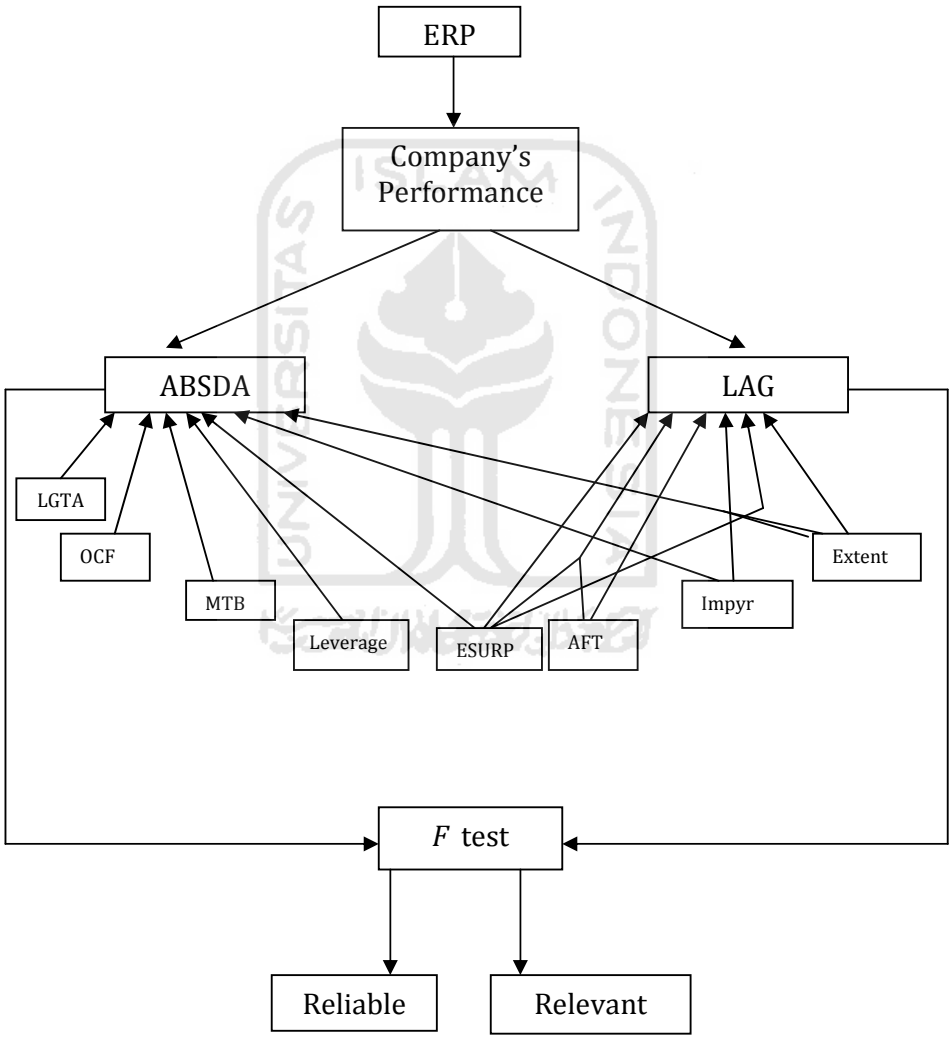
In statistical measurements, the value of confidence intervals is 95% and the value of confidence level is 5%. This measurement is the effort of statistician to avoid two misleading. *First*, accept H_o which should be rejected and reject H_o which should be accepted (Gujarati, 1988).

3.8 Research Framework

3.8.1 Regression Framework

Figure 3.1

Regression Framework



Source: research variable after processed with SPSS

CHAPTER IV

DATA ANALYSIS AND DISCUSSION

This chapter discusses the data analysis and research findings about whether the ERP implementation within a company can affect the decrease in the reliability of accounting information and the increase in the relevancy of accounting information. The reliability will be measured through descriptive statistic for each independent variables and ABSDA regression using ANOVA. Moreover the relevancy will be measured through descriptive statistic for each independent variable and REPORTING LAG regression using ANOVA. This chapter will be divided into three parts: analysis of accounting reliability and analysis of accounting relevancy (which the result of descriptive statistic of the data and the result of regression test using ANOVA already included in both part) and last, the discussion of this research.

4.1 Data Description

This research uses *Purposive sampling*. *Purposive sampling* method is a method using sample for their own judgments to select the data. Often used with very small sample or population within qualitative research, particularly case study or grounded theory. This approach cannot yield statistical interference about the population. Sometime cases are selected for being unusual or special or particular related to research question(s) (Sue, 2008).

There are 386 public companies, which are listed in Indonesian Stock Exchange and have implemented SAP for minimum of 3 years. The second criterion to select the data is, implementation of SAP within the public companies, which have finished before December 31st, 2010. There are 172 companies that meet this criterion. According to the third criterion is, actively published their annual financial statement during the research period (1, 2, 3 year before and 1, 2, and 3 years after SAP implementation), there are 134 companies that meet this criterion. The last criterion is, report of the annual financial statements per December 31 are available for each public company in 1, 2, 3 year before and 1, 2, and 3 years after SAP implementation, and there are 26 companies that meet this criterion.

TABLE 4.1

Sample Selection Procedure

Criteria	Total Firms
1. The public companies, which is listed in Indonesian Stock Exchange and have implemented SAP for minimum of 3 years.	386
Out of second criteria	214
2. SAP implementation within the public companies must have finished before December 31st, 2010.	172
Out of Third criteria	38
3. The public companies listed in Indonesian Stock Exchange actively published their annual financial statement during the research period (1, 2, 3 year before and 1, 2, and 3 years after SAP implementation).	134
Out of Fourth criteria	108
4. The annual financial statements per December 31st are available for each public companies in 1, 2, 3 year before and 1, 2, and 3 years after SAP implementation.	26

Source Adapted from: Indonesian Capital Market Directory

Moreover the list of 26 companies data that used in this research can be seen in the table 4.2 below.

Table 4.2

Data of Company SAP Implementation Year

No	Code	Company's Name	Implementation Year
1	ASGR	Astra Graphia Document & IT Solution	2000
2	MTDL	Metrodata Electronics	2000
3	BBCA	Bank BCA	2002
4	CPIN	Charoen Phokpand Indonesia	2001
5	ULTJ	Ultrajaya Milk	2003
6	AQUA	Aqua Golden Mississippi	2003
7	INKP	Indah Kiat Pulp & Paper	2003
8	SMCB	Holcim Indonesia	2003
9	INTA	Intraco Penta	2003
10	TSPC	Tempo Scan Pacific	2003
11	TGKA	tigaraksa satria	2004
12	AUTO	Astra Otopart	2004
13	RMBA	Bentoel International Investama	2004
14	PRAS	Prima Alloy Steel	2004
15	DYNA	Dynaplast	2004
16	TINS	Timah	2005
17	UNTR	United tractor Indonesia	2002
18	WICO	Wicaksana Overseas International	2001
19	DLTA	Delta Djakarta	2000
20	HDTX	Panasia Indosystec	2002
21	IKAI	Inti Keramik Alamasri Industri	2001
22	INDF	Indofood Sukses Makmur	2000
23	JPFA	Japfa	2001
24	MEDC	Medco Energi International	2002
25	MYOR	Mayora Indah	2000
26	TKIM	Pabrik Kertas Tjiwi Kimia	2002

Source: PT. SAP Indonesia

4.2 Research Findings

4.2.1 Analysis of Accounting Reliability

This part examines whether ERP implementations have an impact on accounting information reliability (H1). The measure uses absolute accruals discretionary. By testing on average, the magnitude of discretionary accruals increased after the ERP went live.

Table 4.3 a to f below will show descriptive statistic for discretionary accruals, the absolute value of discretionary accruals (ABSDA), total assets (TA), operating cash flows (OCF), leverage (LEV), and market-to-book value (MTB) over the years t-3 to t+3 for the selected sample.

Table 4.3a

Descriptive Statistics of Discretionary Accruals

Descriptive Statistics of Discretionary Accruals

Year	N	Mean	Median	Std. Deviation
-3	26	-.0003545	-0.0766713	.45290877
-2	26	-.0005524	-0.1086346	.43485365
-1	26	.0007987	-0.1774517	.54876815
0	26	-.0001804	-0.2292616	.51434057
1	26	-.0013755	-0.1166169	.51004706
2	26	-.0016612	-0.1265631	.50489449
3	26	-.0007481	-0.0884106	.52583697
Valid N (listwise)			26	

Source: Secondary data processed, 2011

From the table above it can be seen that the discretionary accruals decrease after the implementation of ERP. Negative discretionary appear in the year t-3 and t-2 before the program went live. In the year t0 to t3, it tends to perform negative discretionary, with decreasing mean. Overall we

can see that median is smaller than the mean, which indicates that most of companies conduct the negative discretionary accruals.

Table 4.3b

Descriptive Statistics of ABSDA

Descriptive Statistics of ABSDA

Year	N	Mean	Median	Std. Deviation
-3	26	.3106194	0.4760948	.32370157
-2	26	.3180459	0.5547617	.28965266
-1	26	.4108990	1.6799297	.35433831
0	26	.4227576	0.5793887	.28048763
1	26	.3810696	0.642534	.33034429
2	26	.3892126	0.5728414	.31205034
3	26	.3804849	3.6178297	.35488816
Valid N (listwise)			26	

Source: Secondary data processed, 2011

From the table above it can be seen that the ABSDA tend to increase from year t-3 to t0 where the program had not been implemented yet. However after the ERP went live (year t1 to t3), ABSDA tends to decrease. We can also see that median is bigger than mean, it indicates that over all firms tend to decrease discretionary.

Table 4.3c

Descriptive Statistics of Total Asset

Descriptive Statistics of Total Asset

Year	N	Mean	Median	Std. Deviation
-3	26	133117.8842	35402.2839	188894.84925
-2	26	138905.7738	37938.6049	195737.50140
-1	26	142509.1134	35983.5782	193131.71954
0	26	159321.3307	40499.937	214518.19421
1	26	184350.6907	47645.8427	244075.12964
2	26	196281.9632	50763.3901	257092.05066
3	26	211786.6206	55878.0282	276437.09048
Valid N (listwise)			26	

Source: Secondary data processed, 2011

From the table above it can be seen that the Total Asset is increase from t-3 to t3. The median is lower than mean. It indicates there is a Total Asset lag between big and smaller firms and the smaller firms have a bigger number.

Table 4.3d

Descriptive Statistics of Operating Cash Flow

Descriptive Statistics of Operation Cash Flow

Year	N	Mean	Median	Std. Deviation
-3	26	311302.6484	225653.3857	214831.24749
-2	26	386116.1111	275751.1937	309912.11849
-1	26	365909.7429	300235.616	288490.95400
0	26	364605.5046	323827.7924	220006.94661
1	26	437925.5685	429768.6653	213507.11184
2	26	637545.8596	522245.3938	699629.02303
3	26	525904.9985	551514.2505	232865.23156
Valid N (listwise)			26	

Source: Secondary data processed, 2011

From the table above it can be seen that the value OCF mean from t-3 to t3 are unstable, however there is an increasing value of mean between t-3 and t3. Moreover the value of median increased from t-3 until t3.

Table 4.3e

Descriptive Statistics of Leverage.

Descriptive Statistics of Leverage

Year	N	Mean	Median	Std. Deviation
-3	26	4.7768776	4.3469392	2.10709003
-2	26	4.0740048	3.7112166	1.59706129
-1	26	3.1864969	3.1345682	.80072393
0	26	2.93793924	2.78881578	1.539518953
1	26	2.1510452	1.8743575	1.02192809
2	26	2.0973743	1.950117	.94039090
3	26	1.6026099	1.5616333	.84871086
Valid N (listwise)			26	

Source: Secondary data processed, 2011

From the table above it can be seen that the leverage mean decreases from t-3 to t3. This is because the impact of increasing in total shareholder's equity (see equation 3.4 in chapter III).

Table 4.3f

Descriptive Statistics of Market To Book Value

Descriptive Statistics of MTB

Year	N	Mean	Median	Std. Deviation
-3	26	2.9122864	2.853866	1.05594392
-2	26	3.0503847	2.9021735	1.05428655
-1	26	3.2475827	3.159145	1.07842363
0	26	3.59958387	3.3811005	1.186696736
1	26	3.7672235	3.6499265	1.38935830
2	26	5.2338134	3.9157168	6.61810955
3	26	4.3221476	4.2987388	1.57641434
Valid N (listwise)			26	

Source: Secondary data processed, 2011

From the table above it can be seen that the MTB mean increases from t-3 to t3, parallel with Total Asset. This finding indicates that the firm's book value is increase all years, except from t2 to t3.

Finally we can see that mean of TA, OCF, and MTB (table 4.3 c to f) show obvious increases from year -3 to year +3 and always above the median. DA tends to decrease from year t-3 to t2, especially after ERP went live, but it increases again in period t3. Negative discretionary appear in year t-3 and t-2 before the ERP went live, and in year t2 after ERP went live.

After analyzing the descriptive statistic of each independent variable, the next step is analyzing the result of regression test using ANOVA.

Table 4.4

ANOVA regression analysis on ABSDA

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1734.252	7	247.750	4.956	.000[a]
	Residual	8697.867	174	49.988		
	Total	10432.119	181			

a. Predictors: (Constant), Implementation Year, Research Time Space, Logarithm of Total Assets, Market to Book Value, Leverage, OFC per TA, EXTENT Year 0 = 1

b. Dependent Variable: Absolute Discretionary Accruals

Source: Secondary data processed, 2011

Table 4.5

Equation Coefficients of ABSDA

1	(Constant)	6.988
	EXTENT Year 0 = 1	-9.521
	Research Time Space	3.162
	Logarithm of Total Assets	-2.472
	Leverage	.297
	Market to Book Value	-.308
	OFC per TA	-.058
	Implementation Year	1.312

a. Dependent Variable: Absolute Discretionary Accruals

Source: Secondary data processed, 2011

ABSDA equation is:

$$ABSDA = 6.988 - 9.521 * EXTENT + 3.162 * TREND - 2.472 * LGTA + 0.297 * LEV - .308 * MTB - 0.058 * OFC + 1.312 * IMPYR$$

In the ABSDA equation AFT is eliminated because it is considered as zero problem (SPSS regression result in Appendix 9).

According to table 4.4 (ANOVA), significance level of F test is 0.000, which mean the independent variables are correlated significantly and

simultaneously to dependent variable. Statistical criteria, that is, if the significance level of F test is less than 5% or 0.05, so the independent variables are significantly correlated to dependent variable.

By the F test the significance level shows that the independent variables are significantly correlated with ABSDA, so there is discretionary accrual on the financial report. It means that the reliability of accounting information is decreasing.

4.2.2 Analysis of Accounting Relevancy

This part examines whether ERP implementations have an impact on accounting information relevancy (H2). The measure is by using Reporting Lag analysis using descriptive statistic and ANOVA test. Table 4.6 to 4.7 below will show descriptive statistics for Reporting Lag and ESURP over the years t-3 to t+3 for the selected sample.

Table 4.6
Descriptive Statistic of Reporting Lag

Descriptive Statistics

	N	Mean	Media	Std. Deviation
Dmin3	26	49.73	47.50	.19736
Dmin2	26	46.23	46.50	.05840
Dmin1	26	44.88	42.50	.05546
D0	26	44.19	43.50	.05568
D1	26	48.96	48.50	.04932
D2	26	55.88	56.00	.05230
D3	26	63.08	70.50	.05838
Valid N (listwise)	26			

Source: Secondary data processed, 2011

From the table above it can be seen that the Mean reporting lag decreases from t-3 to t0 and increase from year t0 to t3. It indicates that accounting financial report is announced earlier after ERP went live. Most of the value of median is lower than the value of mean from t-3 to t0, which indicates reporting lag is near to the Fix Year End (FYE). Meanwhile most median from t0 to t3 lay higher than mean, which indicates reporting lag is earlier to the FYE.

Table 4.7

ESURP Description

ESURP Descriptive Statistics

	N	Mean	Median	Std. Deviation
Dmin3	26	1.0662	1.02500	.19736
Dmin2	26	1.0177	1.02000	.05840
Dmin1	26	1.0096	1.00500	.05546
D0	26	1.0096	1.00500	.05568
D1	26	1.0262	1.02500	.04932
D2	26	1.0492	1.05000	.05230
D3	26	1.0738	1.10000	.05838
Valid N (listwise)	26			

Source: Secondary data processed, 2011

From the table above, it can be seen that the ESURP mean is higher than 1, it indicates that the earning per share is always increase every year.

Finally, we can summarize that the LAG descriptive statistics (table 4.6) indicates that the mean is increase from t0 to t 3, and decrease in year t-3 to t0. The conclusion can be drawn from this fact is: before the ERP

program implementation, the financial report process takes a longer time to accomplish, but after the program went live the report process is faster.

While, Table 4.7 demonstrates that Earning per Share increases after the implementation of ERP. This effect can be seen in t0 (1.0096) to t3 (1.0738), which means the stakeholder can get more fortune and profit.

After analyzing the descriptive statistic of each independent variable, the next step is analyzing the result of regression test using ANOVA.

Table 4.8

ANOVA regression analysis on Reporting Lag

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36706.879	5	7341.376	63.388	.000[a]
	Residual	20383.544	176	115.816		
	Total	57090.423	181			

a. Predictors: (Constant), EXTENT times Esurp, EPSt per EPSt-1, Implementation Year, Extent uses, AFT times ESURP

b. Dependent Variable: Reporting date to FYE

Source: Secondary data processed, 2011

Table 4.9

Equation Coefficients of

Reporting Lag

1 (Constant)	-11.629
Extent uses	-244.890
EPSt per EPSt-1	56.808
Implementation Year	-.259
AFT times ESURP	-.430
EXTENT times Esurp	241.296

a. Dependent Variable: Reporting date to FYE

Source: Secondary data processed, 2011

Reporting LAG equation is:

$$LAG = -11.629-244.890*EXTENT+56.808*ESURP-0.259*IMPYR-0.430*AFT* ESURP + 241.296* EXTENT* ESURP$$

According to table 4.8 (ANOVA), significance level of F test is 0.000, which mean the independent variables are correlated significantly and simultaneously to dependent variable. Statistical criteria, that is, if the significance level of F test is less than 5% or 0.05, so the independent variables are significantly correlated to dependent variable.

By the F test significance level shows that the independent variables are correlated significantly and simultaneously with Reporting Lag, so time that is needed by a company to report the financial report is shortened. It means that the relevancy of accounting information is increasing

4.3 Summary of Hypothesis Testing

Based on the result of data testing and the explanation above, The result can be interpreted into this hypothesis testing:

H_1: ERP system implementations decrease the reliability of accounting information

After running a data testing, it is obtained that the significance level of F test on reliability ANOVA regression is 0.000. So F statistic (0.000) < 0.05 which mean that the independent variables are correlated significantly and simultaneously to dependent variable. Statistical criteria, said that if

the significance level of F test is less than 5% or 0.05, so the independent variables are significantly correlated to dependent variable.

Reliability is about honesty, integrity and represents faithfulness. Based on that, financial report of a company is reliable when company being honest when they operates and makes the financial report. Moreover the user of financial report can see and understand about the company financial operations. The F test significance level above shows that the independent variables are significantly correlated with ABSDA, so there is discretionary accrual on the financial report. Based on the explanation above, we can conclude that the implementation of ERP could decrease the reliability of accounting information. That is because, there is still a value of discretionary accrual that exist in financial report.

Discretionary accruals are appears as a policy or the right of a company when they are operates their business. In other hand, a good financial report is occurred when financial statement is reliable or honest. Moreover the fact shows that implementation of ERP system cannot make the discretional accrual value disappear. This means, the implementation of ERP system can only decrease the value of discretionary accruals.

It is becoming a great dilemma for us that focus in concerning the reliability of accounting information. If the value of discretionary accruals in financial report is bigger, it can be said that financial report is not reliable and the company also not honest. Moreover, why the ERP system cannot successfully handle this phenomenon? The researcher thinks that,

this is better if we give this reality back to the company. There are some reasons why a company always makes discretionary accruals. According to the theory of Jansen and Meckling (1976), a company makes the discretionary accruals because:

1. Managers of the company tend to win the bonus.
2. According to Jensen statement that, financial statement is the part of integrated company's contract. Because of that, applying the discretionary accruals can minimize the interest of conflict for any companies and user who concern on that report.
3. Implementing discretionary accruals, also can make the company avoid the declining the price of share of that company.

According to Doyle (2005), the company that always implements discretionary accruals has a purpose, they want their financial report meet their objectives and targets. In other hand, this is do not reflect the true financial condition of the company. The researcher also thinks that, ERP system cannot decrease the value of discretionary accruals and cannot make the company not to do the discretionary accruals. This is because the objective of ERP system is integrating all information system that exists in a company, so that the efficiency and effectiveness can be gained. Once again the researcher thinks that making discretionary accruals is the right of the management of company, they want to do or they want not to do the

discretionary accruals is up to them. Because, making a discretionary accrual is the right and policy of the company.

Now it is clear that implementing ERP cannot decrease the value of discretionary accrual and if the value of discretionary accruals in the financial report is still exist or increasing, so the reliability of the financial report is decreasing.

This result supports the previous research that has been done by Brazel and Li Dang (2005), that the implementation of ERP can decrease the reliability of accounting information.

H_2: ERP system implementations increase the relevancy of accounting information.

From the data analysis, it is can be concluded that the significance level of F test on relevancy ANOVA regression is 0.000. If F statistic (0.000) < 0.05, it is mean that the independent variables are correlated significantly and simultaneously to dependent variables. Based on statistical criteria, if the significance level of F test is less than 5% or 0.05, the independent variables are significantly correlated with dependent variables.

One thing that can be derived from the relevancy of accounting information is efficient and timeliness. Financial statement can be said relevance if the financial report has a good timeliness and efficient. The F test significance level shows that the independent variables are significantly correlated with Reporting Lag, which means the duration of

time that is needed by a company to report the financial report is shortened. It is also means that the relevancy of accounting information is increasing.

Based on the explanation above we can conclude that the implementation of ERP could increase the relevancy of accounting information, because the total time that is needed to post the financial report is shortened. It means that before the ERP program implementation, the financial report process takes a longer time to accomplish, but after the program went live the report process is faster. So the financial report can be posted early than Fix Year End. Moreover, the value of earning per share also increases simultaneously. It means that the share holder can gain more profit. Now it is clearly that implementing ERP can decrease the time to post financial report and increase the value of earning per share, so the relevancy of accounting information is increasing.

Based on the explanation above, it can be said that the investor like the financial report which is published earlier. Investor like the financial report which is published earlier, it means that financial report is timely. Financial report or information is timely when it is available to user early enough to allow its use in the decision process. The need for timely information requires the companies to provide information to external users on a periodical basis, because of that information or financial report is timely if it is available to users or investor before a decision is made.

Moreover based on that reason, the researcher thinks that the company would not invest their money for the wrong purpose.

This result supports the previous research that has been done by Brazel and Li Dang (2005), that the implementation of ERP can increase the relevancy of accounting information.

This research consists of two hypotheses that have been tested. Based on the result of this research, all of hypotheses are proven and supported by the data. The result of these hypotheses testing can be summarized on table below:

Table 4.10: Result of Hypothesis Testing

	Phrase	Result
H_1	ERP system decrease accounting information reliability	Proven
H_2	ERP system increase the relevancy of accounting information	Proven

Chapter V

CONCLUSION

This chapter will discuss the conclusion that the researcher has drawn from this study according to the data analysis. Finally, this last chapter will also include the recommendation and the suggestion for the future research concerned with this study.

5.1 Conclusions

The first hypothesis (H1), that ERP system implementations decrease the reliability of accounting information is proven. It is clear that ABSDA regression is significant. It means that there is a discretionary accruals. Implementing ERP can cause the process of reporting the financial report with discretionary accruals is going bigger, the other side, the implementation of ERP can also make the process of reporting the financial report faster.

Moreover the second hypothesis (H2) is proven. We can see from the LAG descriptive statistics (table 4.6) that indicates the mean is increasing from t0 to t 3, and decreasing in year t-3 to t0. The conclusion can be drawn from this fact is: before the ERP program implementation, the financial report process takes a longer time to accomplish, but after the program went live the report process is faster.

Table 4.7 demonstrates that EPS increase after the implementation of ERP. This effect can be seen in t0 (1.0096) to t3 (1.0738), which means the stakeholder can get more fortune and welfare.

Table 4.6 and 4.7 show that accounting financial report can be made earlier by the ERP program, but the price per share increases. It indicates that reporting lag is relevant to the stakeholders and institution which concern with the financial reports.

5.2 Research Implication

This research would be useful if the result of this research become the source of reference for student and scholar to identify all things that mainly correlated with ERP implementation and its effect towards to the usefulness of accounting information. Finally, the research implications of this research are:

1. The interval data that is used in this research is 3 years before and 3 years after company implementing ERP software. Additional studies could attempt to discern whether the trends observed in this study abate, continue, or become more acute in the long-term.
2. ERP systems apparently allow managers to do more discretion over accounting information, then the reliability of accounting information (e.g., ratios) used to evaluate post-ERP adoption performance. Future research looking into the relationship between ERP and performance may want to use non-financial variables (e.g., number of facilities, new products, and customer satisfaction

ratings) to complement financial measures when measuring operational improvement.

3. The results documented in this study should be of interest to financial statement preparers initially adopting or implementing new versions of ERP applications, auditors serving clients with ERP systems, and regulators overseeing the financial markets and consolidation in the ERP industry.

5.3 Constraint

This research has many limitation or weaknesses, such as:

1. In this research, the researcher only uses 26 companies from ICMD as a sample in doing this research.
2. The problem or hypothesis related to the effect of ERP implementation to the usefulness of accounting information that used in this research only concern in reliability of accounting information and relevancy of accounting information.
3. The variables that used in this research in order to proof the hypothesis are just financial variable.
4. Although the implementing ERP software can make the company easier in making their financial report, but the Absolute Value of Discretionary (ABSDA) equation could not show which company that has a discretionary and how big the discretionary of that company.

5. LAG module that used in this research could not show which company that are capable to finish and publish their financial report and which company that has the biggest price per share. So that this research could not identify which commodity that would be helped by the ERP implementation.

5.4 Suggestion

Based on the limitation that exist in this research and for developing to a better future research especially in this topic, so suggestions for the next researcher are:

1. For the next research it is better to uncover all the firms that are registered in Indonesian Capital Market Directory, but it needs more time, energy and fund. This effort is to appreciate the firm's financial performance and turn to stake holder's welfare.
2. It is better if the next researcher finds another problem or hypothesis, mainly about the effect of ERP implementation to the usefulness of accounting information that have not been covered yet in this research. For example such as: understandability of accounting information, verifiability of accounting information and materiality of accounting information.
3. The future research also expected to use another or new research variable, for example the next research use a non financial variable. The example of a non financial-variable such as: Costumer satisfaction ratings, number of facilities and new products.

4. The usage of financial variable as the dependent variable in this research such as: Absolute Value of Discretionary Accruals (ABSDA) and Reporting Lag (LAG), also has a limitation in analyzing the hypothesis. Based on this limitation, it is suggested for the next researcher to develop a new hypothesis and a new research variable in the research. It is suggested to use non financial variable like on the explanation above.

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APPENDICES

Appendix 1: Regression ABSDA Result

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	Implementation Year, Research Time Space, Logarithm of Total Assets, Market to Book Value, Leverage, OFC per TA, EXTENT Year 0 = 1[a]	.	Enter

a. Tolerance = .000 limits reached.

b. Dependent Variable: Absolute Discretionary Accruals

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.408[a]	.166	.133	7.07020111

a. Predictors: (Constant), Implementation Year, Research Time Space, Logarithm of Total Assets, Market to Book Value, Leverage, OFC per TA, EXTENT Year 0 = 1

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1734.252	7	247.750	4.956	.000[a]
	Residual	8697.867	174	49.988		
	Total	10432.119	181			

a. Predictors: (Constant), Implementation Year, Research Time Space, Logarithm of Total Assets, Market to Book Value, Leverage, OFC per TA, EXTENT Year 0 = 1

b. Dependent Variable: Absolute Discretionary Accruals

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	6.988	4.974		1.405	.162
EXTENT Year 0 = 1	-9.521	3.398	-.622	-2.802	.006
Research Time Space	3.162	.769	.835	4.110	.000
Logarithm of Total Assets	-2.472	.920	-.200	-2.687	.008
Leverage	.297	.215	.108	1.384	.168
Market to Book Value	-.308	.200	-.125	-1.542	.125
OFC per TA	-.058	.041	-.110	-1.401	.163
Implementation Year	1.312	2.329	.061	.563	.574

a. Dependent Variable: Absolute Discretionary Accruals

Excluded Variables[b]

Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
					Tolerance
1 After Instalation = 1	.[a]	.	.	.	.000

a. Predictors in the Model: (Constant), Implementation Year, Research Time Space, Logarithm of Total Assets, Market to Book Value, Leverage, OFC per TA, EXTENT Year 0 = 1

b. Dependent Variable: Absolute Discretionary Accruals

Appendix 2: Descriptive Statistics of Reliability Analysis
Appendix 2a: Descriptive Statistics of DA

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DAtmin3	26	-.53477	1.64656	-.0003545	.45290877
DAtmin2	26	-.52833	1.15335	-.0005524	.43485365
DAtmin1	26	-.57559	1.29891	.0007987	.54876815
DAt0	26	-.55835	1.17214	-.0001804	.51434057
DAt1	26	-.54315	1.46063	-.0013755	.51004706
DAt2	26	-.60384	1.55862	-.0016612	.50489449
DAt3	26	-.60615	1.59252	-.0007481	.52583697
Valid N (listwise)	26				

Statistics

	DAtmin3	DAtmin2	DAtmin1	DAt0	DAt1	DAt2	DAt3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	-.0766713	-.1086346	-.1774517	-.2292616	-.1166169	-.1265631	-.0884106

Descriptive Statistics of DA

Year	N	Mean	Median	Std. Deviation
-3	26	-.0003545	-0.0766713	.45290877
-2	26	-.0005524	-0.1086346	.43485365
-1	26	.0007987	-0.1774517	.54876815
0	26	-.0001804	-0.2292616	.51434057
1	26	-.0013755	-0.1166169	.51004706
2	26	-.0016612	-0.1265631	.50489449
3	26	-.0007481	-0.0884106	.52583697
Valid N (listwise)			26	

Appendix 2b: Descriptive Statistics of ABSDA

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DAtmin3	26	.01147	1.64656	.3106194	.32370157
DAtmin2	26	.01219	1.15335	.3180459	.28965266
DAtmin1	26	.03650	1.29891	.4108990	.35433831
DAt0	26	.01720	1.17214	.4227576	.28048763
DAt1	26	.00789	1.46063	.3810696	.33034429
DAt2	26	.03433	1.55862	.3892126	.31205034
DAt3	26	.00408	1.59252	.3804849	.35488816
Valid N (listwise)	26				

Median of ABSDA

	DAtmin3	DAtmin2	DAtmin1	DAt0	DAt1	DAt2	DAt3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	.4760948	.5547617	1.6799297	.5793887	.6425340	.5728414	3.6178297

Descriptive Statistics of ABSDA

Year	N	Mean	Median	Std. Deviation
-3	26	.3106194	0.4760948	.32370157
-2	26	.3180459	0.5547617	.28965266
-1	26	.4108990	1.6799297	.35433831
0	26	.4227576	0.5793887	.28048763
1	26	.3810696	0.642534	.33034429
2	26	.3892126	0.5728414	.31205034
3	26	.3804849	3.6178297	.35488816
Valid N (listwise)			26	

Appendix 2c: Descriptive Statistics of Total Assets (TA)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DAtmin3	26	11443.33	720898.36	133117.8842	188894.84925
DAtmin2	26	11983.70	738920.82	138905.7738	195737.50140
DAtmin1	26	11399.35	702542.06	142509.1134	193131.71954
DAt0	26	16949.97	731711.84	159321.3307	214518.19421
DAt1	26	19942.77	781406.78	184350.6907	244075.12964
DAt2	26	23302.73	785603.09	196281.9632	257092.05066
DAt3	26	30022.44	867401.56	211786.6206	276437.09048
Valid N (listwise)	26				

Statistics

	DAtmin3	DAtmin2	DAtmin1	DAt0	DAt1	DAt2	DAt3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	35402.2839	37938.6049	35983.5782	40499.9370	47645.8427	50763.3901	55878.0282

Descriptive Statistics of TA

Year	N	Mean	Median	Std. Deviation
-3	26	133117.8842	35402.2839	188894.84925
-2	26	138905.7738	37938.6049	195737.50140
-1	26	142509.1134	35983.5782	193131.71954
0	26	159321.3307	40499.937	214518.19421
1	26	184350.6907	47645.8427	244075.12964
2	26	196281.9632	50763.3901	257092.05066
3	26	211786.6206	55878.0282	276437.09048
Valid N (listwise)			26	

Appendix 2d: Descriptive Statistics of Operating Cash Flows (OCF)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DAtmin3	26	97976.27	903860.36	311302.6484	214831.24749
DAtmin2	26	111067.87	1285787.40	386116.1111	309912.11849
DAtmin1	26	106305.49	1144414.72	365909.7429	288490.95400
DAt0	26	20454.73	978171.54	364605.5046	220006.94661
DAt1	26	100305.49	989072.27	437925.5685	213507.11184
DAt2	26	107287.47	3838915.03	637545.8596	699629.02303
DAt3	26	142662.54	1264668.94	525904.9985	232865.23156
Valid N (listwise)	26				

Statistics

	DAtmin3	DAtmin2	DAtmin1	DAt0	DAt1	DAt2	DAt3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	225653.3857	275751.1937	300235.6160	323827.7924	429768.6653	522245.3938	551514.2505

Descriptive Statistics of OCF

Year	N	Mean	Median	Std. Deviation
-3	26	311302.6484	225653.3857	214831.24749
-2	26	386116.1111	275751.1937	309912.11849
-1	26	365909.7429	300235.616	288490.95400
0	26	364605.5046	323827.7924	220006.94661
1	26	437925.5685	429768.6653	213507.11184
2	26	637545.8596	522245.3938	699629.02303
3	26	525904.9985	551514.2505	232865.23156
Valid N (listwise)			26	

Appendix 2e: Descriptive Statistics of Leverage (LEV)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DAtmin3	26	1.66748	8.70198	4.7768776	2.10709003
DAtmin2	26	1.50745	7.70811	4.0740048	1.59706129
DAtmin1	26	1.31385	4.85783	3.1864969	.80072393
DAt0	26	.571566	9.236656	2.93793924	1.539518953
DAt1	26	.17550	3.91882	2.1510452	1.02192809
DAt2	26	.31863	3.89545	2.0973743	.94039090
DAt3	26	.17550	4.35099	1.6026099	.84871086
Valid N (listwise)	26				

Statistics

	DAtmin3	DAtmin2	DAtmin1	DAt0	DAt1	DAt2	DAt3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	4.3469392	3.7112166	3.1345682	2.78881578	1.8743575	1.9501170	1.5616333

Descriptive Statistics of LEV

Year	N	Mean	Median	Std. Deviation
-3	26	4.7768776	4.3469392	2.10709003
-2	26	4.0740048	3.7112166	1.59706129
-1	26	3.1864969	3.1345682	.80072393
0	26	2.93793924	2.78881578	1.539518953
1	26	2.1510452	1.8743575	1.02192809
2	26	2.0973743	1.950117	.94039090
3	26	1.6026099	1.5616333	.84871086
Valid N (listwise)			26	

Appendix 2f: Descriptive Statistics of Market to Book Value (MTB)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DAtmin3	26	1.00965	5.90267	2.9122864	1.05594392
DAtmin2	26	1.20398	5.54948	3.0503847	1.05428655
DAtmin1	26	1.39202	5.68201	3.2475827	1.07842363
DAt0	26	1.469961	6.182183	3.59958387	1.186696736
DAt1	26	.59121	6.44606	3.7672235	1.38935830
DAt2	26	.17257	36.80458	5.2338134	6.61810955
DAt3	26	.08113	7.04745	4.3221476	1.57641434
Valid N (listwise)	26				

Statistics

	DAtmin3	DAtmin2	DAtmin1	DAt0	DAt1	DAt2	DAt3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	2.8538660	2.9021735	3.1591450	3.38110050	3.6499265	3.9157168	4.2987388

Descriptive Statistics of MTB

Year	N	Mean	Median	Std. Deviation
-3	26	2.9122864	2.853866	1.05594392
-2	26	3.0503847	2.9021735	1.05428655
-1	26	3.2475827	3.159145	1.07842363
0	26	3.59958387	3.3811005	1.186696736
1	26	3.7672235	3.6499265	1.38935830
2	26	5.2338134	3.9157168	6.61810955
3	26	4.3221476	4.2987388	1.57641434
Valid N (listwise)			26	

Appendix 3: Lag Regression Result

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	EXTENT times Esurp, EPSt per EPSt-1, Implementation Year, Extent uses, AFT times ESURP[a]	.	Enter

a. Tolerance = .000 limits reached.

b. Dependent Variable: Reporting date to FYE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.802[a]	.643	.633	10.76177

a. Predictors: (Constant), EXTENT times Esurp, EPSt per EPSt-1, Implementation Year, Extent uses, AFT times ESURP

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36706.879	5	7341.376	63.388	.000[a]
	Residual	20383.544	176	115.816		
	Total	57090.423	181			

a. Predictors: (Constant), EXTENT times Esurp, EPSt per EPSt-1, Implementation Year, Extent uses, AFT times ESURP

b. Dependent Variable: Reporting date to FYE

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-11.629	10.268		-1.133	.259
Extent uses	-244.890	25.090	-6.843	-9.761	.000
EPSt per EPSt-1	56.808	9.888	.295	5.745	.000
Implementation Year	-.259	45.297	-.005	-.006	.995
AFT times ESURP	-.430	44.369	-.013	-.010	.992
EXTENT times Esurp	241.296	39.903	7.036	6.047	.000

a. Dependent Variable: Reporting date to FYE

Appendix 4: Descriptive Lag

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Dmin3	26	21	86	49.73	20.440
Dmin2	26	15	79	46.23	17.381
Dmin1	26	18	76	44.88	15.251
D0	26	20	79	44.19	16.616
D1	26	26	70	48.96	14.586
D2	26	33	89	55.88	15.614
D3	26	33	87	63.08	17.541
Valid N (listwise)	26				

Statistics

	Dmin3	Dmin2	Dmin1	D0	D1	D2	D3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	47.50	46.50	42.50	43.50	48.50	56.00	70.50

Descriptive Statistics

	N	Mean	Media	Std. Deviation
Dmin3	26	49.73	47.50	.19736
Dmin2	26	46.23	46.50	.05840
Dmin1	26	44.88	42.50	.05546
D0	26	44.19	43.50	.05568
D1	26	48.96	48.50	.04932
D2	26	55.88	56.00	.05230
D3	26	63.08	70.50	.05838
Valid N (listwise)	26			

Appendix 5: Descriptive ESURP

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Dmin3	26	.94	1.98	1.0662	.19736
Dmin2	26	.91	1.13	1.0177	.05840
Dmin1	26	.90	1.12	1.0096	.05546
D0	26	.93	1.13	1.0096	.05568
D1	26	.95	1.10	1.0262	.04932
D2	26	.97	1.16	1.0492	.05230
D3	26	.97	1.15	1.0738	.05838
Valid N (listwise)	26				

ESUP Descriptive Statistics

	Dmin3	Dmin2	Dmin1	D0	D1	D2	D3
N Valid	26	26	26	26	26	26	26
Missing	0	0	0	0	0	0	0
Median	1.0250	1.0200	1.0050	1.0050	1.0250	1.0500	1.1000

ESURP Descriptive Statistics

	N	Mean	Median	Std. Deviation
Dmin3	26	1.0662	1.02500	.19736
Dmin2	26	1.0177	1.02000	.05840
Dmin1	26	1.0096	1.00500	.05546
D0	26	1.0096	1.00500	.05568
D1	26	1.0262	1.02500	.04932
D2	26	1.0492	1.05000	.05230
D3	26	1.0738	1.10000	.05838
Valid N (listwise)	26			