COMPANY PERFORMANCE ANALYSIS BEFORE AND AFTER GOING PUBLIC IN INDONESIA STOCK EXCHANGE

ANALISIS KINERJA PERUSAHAAN SEBELUM DAN SESUDAH *GO PUBLIC*

DI BURSA EFEK INDONESIA

THESIS

By:

Indri Puspa Linggarini

090810201046

MANAGEMENT DEPARTMENT
FACULTY OF ECONOMICS
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A Thesis submitted in Partial Fulfillment of the Requirement for the Award of Economics Bachelor (Management)

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090810201046

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2013

National Education Ministry

Jember University – Faculty of Economics

STATEMENT OF THESIS AUTHENTICITY

Name : Indri Puspa Linggarini

Identification Number : 090810201046

Department : Management

Program : Finance Management

Thesis Title : Company Performance Analysis before and after Going

Public in Indonesia Stock Exchange.

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Jember, June 2013

Indri Puspa Linggarini

090810201046

CONSULTANT'S APPROVAL

Thesis Title   : Company Performance Analysis Before and After Going
                                Public in Indonesia Stock Exchange

Name   : Indri Puspa Linggarini

Identification Number : 090810201046

Department   : Management

Program   : Finance Management

Approval Date   : 19 June 2013

               Supervisor II   Supervisor I

     Dr. Elok Sri Utami, M.Si.   Prof. Tatang A.G., M.Buss.Acc., Ph.D.
    NIP 19641228 19900 2 001   NIP 19661125 199103 1 002

                                  Ascertain,
                     Head of Management Department

                       Prof. Dr. Isti Fadah, M.Si.
                     NIP 19661020 199002 2 001

APPROVAL OF THE EXAMINATION COMMITTE

COMPANY PERFORMANCE ANALYSIS BEFORE AND AFTER GOING PUBLIC IN INDONESIA STOCK EXCHANGE

This thesis is prepared and compiled by:

    Name   : Indri Puspa Linggarini

    Identification Number : 090810201046

    Department   : Management

It has been retained by the Examination Committe on the date:

<div align="center"><u>27 June 2013</u></div>

and declared to fulfill completeness requirements to be accepted as graduated at the Faculty of Economics, Jember University.

<div align="center">Team of Examiner:</div>

1. The Chairperson : <u>Dr. Nurhayati, M.M.</u>   : (.....................)
                       NIP. 19610607 198702 2 001

2. The Secretary   : <u>Dr. Elok Sri Utami, M.Si.</u>   : (.....................)
                       NIP. 19641228 199002 2 001

3. The Member   : <u>Prof. Tatang A.G., M.Buss.Acc., Ph.D.</u> : (.....................)
                       NIP. 19661125 199103 1 002

<div align="right">

Ascertain,
Jember University
The Faculty of Economics
The Dean

<u>Dr. Moehammad Fathorrazi, M.Si.</u>
NIP. 19630614 199002 1 001

</div>

DEDICATION

This thesis is honorably dedicated to:

1. My beloved parents: Martina Eva Susanti and Slamet Riadi; for their love and continued support.
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MOTTO

Learn to enjoy every minute of your life. Be happy now. Don't wait for something outside of yourself to make you happy in the future. Think how really precious is the time you have to spend, whether it's at work or with your family. Every minute should be enjoyed and savored.

(Earl Nightingale)

Company Performance Analysis Before And After Going Public In Indonesia Stock Exchange (Analisis Kinerja Perusahaan Sebelum dan Sesudah *Go Public* di Bursa Efek Indonesia)

Indri Puspa Linggarini

Management Department, Faculty of Economics, Jember University

ABSTRACT

This study aims to analyze the financial performances surrounding Initial Public Offerings/IPOs in Indonesia capital market. Empirical evidence seems to agree that most IPO firms are unable to improve financial performance after the IPO. A sample of 33 firms making IPO from 2007-2010 is examined. Market adjusted return instead of actual return is used to test for underpricing. This study employs the approach used in Jain and Kini (1994) in testing the performance of firms' financial performance surrounding IPO year. Similar to previous studies, it is found that on average IPO firms are underpriced as much as 6.3 percent on the day of the issue. The figures are fluctuating for day 2 to day 5. Examination of firms' financial performances, this study finds that all four proxies for financial performance measures tend to decrease after the IPO suggesting that the firms are unable to use the funds generated from the IPO for productive activities or it may take more years for the use of funds to take effect.

Keywords: IPO, underpricing, financial performance

SUMMARY

Company Perfrmance Analysis Before And After Going Public In Indonesia Stock Exchange: Indri Puspa Linggarini, 090810201046; 2013; 38 pages; Management Department Faculty of Economics Jember University

There is significant information asymmetry between issuers and investor at the Initial Public Offerings (IPO). Some researchers stated that there was no news about issuing firms in the media until in the year of the issue. In the case of IPO's, usually there is little information about the private firm that is available to the public. Investors have to rely primarily on the financial statements in the offering prospects, which gives the issuers and the underwriters could be incentive to report favorable accounting numbers. This leads to the thought that issuing firms gain improvements in profitability after the offering. Therefore, it is necessary to analyze the stock performance and the company's operating performance before and after going public in order to know whether going public is an interesting issue to investors and whether going public could increase the company's operating performance.

The study uses secondary data from financial report and the offering price of the company making IPO for the period 2007-2010. Stock perfomance of the firms making IPO can be calculated by abnormal returns. Abnormal return is measured as the difference between actual return and expected return. Expected return is measured using market return on the corresponding day. Operating performance is measured using four variables, namely operating return on assets, operating cash flow to total assets, sales growth and total assets turnover. The results show that all of the abnormal returns have positive value on the days surrounding the IPO. It can be concluded that the investors have positive response to IPO firms in Indonesia Stock Exchange. Relatively similar patterns are found for actual return. The lowest average actual return is found in day one of trading. The highest is recorded in day five of trading. Overall, the abnormal return is different from zero. It shows that H_0 is rejected; it means there are significant abnormal returns on the IPO dates. Thus, the first alternative hypothesis (H_{a1}) that there is abnormal return on IPO date in Indonesia Stock Exchange is accepted.

Moreover, firms operating performance after going public tend to decrease but not all of the patterns are significantly different between periods. Operating performance tend to increase approaching the offering date but decrease slightly after that. Operating return on assets, operating cash flow to total assets, sales growth and total assets turnover as proxies for operating performance indicate similar patterns both in the periods before and after the offering. This study is unable to conclude that the operating performance of the firms making IPO is different between before and after the offering.

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Jember, June 2013

Writer

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CHAPTER I
INTRODUCTION

1.1 Background of the Problems

A company is to become a public company when the company has made the process of an initial public offering (IPO). The definition of a public company is a company that sells some of its shares to the public, to be owned by the public. The process of becoming a public company is usually preceded by the activities of offering shares to the public / community for the first time via the stock exchange or mostly called IPO (Ang, 1997).

The main reason of a company to become a public company by selling shares in the stock market is that there is a need of capital used to support the operational activities. In individual companies, usually the owners of capital consist only for some few investors / owners. Additional funding by new investors will not necessarily increase the liquidity holdings directly. In its development, when the companies become larger and increasingly require additional capital to meet its operational improvement, then selling shares is one option (Gumanti, 2002). But the decision to go public is a complex as it will bring up the loss and the new cost (Gumanti, 2002; Midiastuti and Elias, 2004), so it will certainly affect the financial performance of the company.

Capital market is basically like what traditional market does now, where there are sellers, buyers and can cooperative between them. The capital market can also be interpreted as a mode that brings the part in need of funds to the funding part in accordance with the rules set by institutions and professions related to the effect. The existence of capital markets have benefited from some parties, such as from the companies that need funding, capital markets can be used as a source for fund rising. Meanwhile, from the owners of capital, capital market presence can be used as a means to channel funds (investments), so that will be obtained of investment income referred to in the form of increased value of capital (capital gains) and the results of operations of the distributed profits (dividends) to invest in the market stock. The first offers market is the first offering from the

issuer to the investor during the time set by the issuer before the share are trade in the secondary market. Stock prices in the first offer market is determined by the underwriters and the IPO firms in company fundamental analysis. In the first offers market, the company will obtain the necessary of funds. The Company may use the proceeds from the issuance to develop and expand the capital goods to produce goods and services.

Going public company usually causes of significant changes in the ownership structure of the company. Decrease level of management ownership is one of the results for going public likely to lead the agency problem described by Jensen and Meckling (1976). Therefore, there will be need management change initiatives in companies that have a different or new shareholder.

Performance appraisal is very important, because with the right knowledge about the performance of a company, public company, investors and interested parties will be able to suppress the possibility of errors in decision-making. Performance assessment is important for variants parties, such as management of the company, shareholders, regulators, because it involves the distribution of wealth between them. While operating performance reflects the company's ability to generate profits in the short term that can be measured using the company fundamental data, i.e. data derived from the financial statements of the company.

One of measurement investors rely on is the operating performance. Previous studies suggest that the firm's operating performance tend to decrease after the IPO suggesting that firms is unable to improve its performance after receiving large amount of funds (Jain and Kini, 1994). Zuobao et al. (2003) show that financial performances, i.e., real output, real assets, sales efficiency of 208 privatized firms in China performed better after the IPO. In addition, firm leverage is decreasing, but the profitability change is insignificant. Kim et al. (2004) find that firm financial performances are decreasing after the issue among Thailand's IPOs. Similar findings of the decline in financial performance are reported on 747 IPOs in China (Wang 2005) and on 192 IPOs in Malaysia (Ahmad 2011).

Researchers investigated the changes in the company's operating performance as they make the transition from closed to open for ownership of the company through an IPO. Although some recent studies investigating the performance of the company's IPO, while generally focuses on the performance of the post-issue share price. Researchers found that the company's IPO shows its post-issue operating performance, as measured by operating return on assets and net operating cash flow to assets, relative to their pre-IPO levels, both before and after adjustment of the industry.

Jain and Kini (1994) examine 682 companies doing IPO's in the period from 1976 to 1988 at the New York Stock Exchange. This research finds that IPO firms exhibit a decline in post-issue operating performance, as measured by the operating return on asset and operating cash flows deflated by assets, relative to their pre-IPO levels, both before and after industry adjustment. Thus, the declining operating performance of IPO firms can not be attributed to a lack of sales growth opportunities or cutbacks in post-IPO capital expenditure. Furthermore, they examine that the declining operating performance is the effect from the management efforts to show the better financial performance in the period before IPO. The implication of that statement can be interpreted as an earnings management. Earnings management is defined as companies that use the accounting policies to raise profit in order to impress investors that companies have good financial performance.

Thus, the evidence on firm financial performance after the IPO is conflicting. Zuobao et al. (2003) find improvement in the case of privatization, Jain and Kini (1994), Kim et al. (2004), Mikkelson et al. (1997), Wang (2005), and Ahmad (2011) report the opposite. These contrary findings provide research avenues to seek for external validity of previous studies. Referring to this conflicting result, the current study is going to examine this issue using Indonesian IPO firms. The results of analysis on the company's operating performance comparisons before and after going public would be very important information for the capital market participants. It can be used as one of considerations as investment strategy in IPO market.

1.2 Formulation of the Problems

There is a significant information asymmetry between issuers and investor at the IPO. Rao (1993) stated that there was no news about issuing firms in the media until one year before the issue date. In the case of IPO's, usually there is little information about the private firm that is available to the public. Investor has to rely primarily on the financial statements in the prospectus, which it gives the issuers and the underwriters can incentive to report favorable accounting numbers. This leads to the IPO firms have to improve in profitability after the offering. Therefore, it is necessary to analyze the stock performance and the company's operating performance before and after going public in order to know whether going public is an interest issue to investors and whether going public could increase the company's operating performance. Results of these comparisons can evaluate the success of the company after going public.

Based on the description above, the research problems are:

a. Is there any abnormal return after going public?

b. Are operating performance ratios covering operating return on assets, operating cash flow on total assets, sales growth, and company total asset turnover improving after going public?

1.3 Research Objectives

Based on the formulation of the problem, the objectives of this research are:

a. To examine whether there is abnormal return after going public.

b. To test whether operating performance ratios covering the operating return on assets, operating cash flow on total assets, sales growth, and total asset turnover company went public after better than before going public

1.4 Research Benefits

Research on company performance analysis before and after going public in Indonesia stock exchange is expected to provide some benefits to some parties, namely the next researcher and investor.

a. For the investor

This study is expected to be an input and information to investor in order to build a strategy and investment decisions by the company making IPO.

b. For the next researcher

This study is expected to be a reference for developing future studies related to the company's performance before and after going public in the Indonesia Stock Exchange.

CHAPTER II
LITERATURE REVIEW

2.1 Theoretical Stances

2.1.1 Initial Public Offerings

IPO's can be done after the company obtaining permission from the Indonesia Capital Market Regulatory Agency (BAPEPAM-LK) to give regulation procedures to the company when the securities are not traded yet on stock exchange (Hartono and Ali, 2002). Before the issuers conduct a public offering, the companies have to publish a prospectus. Prospectus is a document of the company that will do the IPO containing accounting measures in the form of financial statements that have been audited which will be a main source of information for investors (Hartono and Ali, 2002). Prospectus also provides information about the condition of the company for investors. With that information, investors can know the future prospects of the company, so it is possible interested for buying securities published by issuers (Ang, 1997; Hartanto and Ediningsih, 2004).

There has been mounting evidence asserting that on average IPO is underpriced (Ibbotson et al. 1988; Ibbotson and Ritter 1994; Ritter 1998). Underpricing is said to be one of three anomalies in the IPO market. The level of underpricing varies between countries where it is relatively higher in emerging markets but lower among developed markets.

This offering price of shares in the primary market is the result of an agreement between the issuer to underwriter. After the initial offering, the stock traded in the secondary market where stock prices are determined by the strength of supply and demand of shares. The percentage difference between the stock prices on the secondary market compared to the price of the stock at the initial offering to the size of the initial return. If the stock price in the secondary market on the first day of stock trading is significantly higher than the offering stock price in the primary market is suffered by underpricing.

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2.1.2 Abnormal Return

Gumanti (2011:157) explained that the abnormal return is the difference between the actual return and expected return. Abnormal return will be positive if the returns obtained by investors are greater than the expected returns. On the other hand, if the returns obtained by investors are less than the expected returns, the abnormal returns will be negative. Abnormal return is used to test the stock market reaction to an event that occurred. IPO firm can be seen from the significant abnormal return around the IPO date.

If an event has the information, the stock market will react and indicated by the change in stock prices. Stock returns is sum of the income plus capital gain or capital loss on the investment of investors obtained by assets or securities (Gumanti, 2011:54). Then, market returns is the rate of profit market which is a reflection of the market's gain in the form of changes to market index. Market index used is the stock price index expressed as a percentage and calculated daily by the ratio scale (Gumanti, 2011:56). Furthermore, there some models that can be used to calculate the expected return, such as single index model and the capital asset pricing model.

2.1.3 Operating Performance

According to the theory of modern financial, management decisions intend to increase shareholder wealth and enhance the value of the company's performance (Sudarsanam, 1999:246). In this case, the companies' first stock offering is part of the management decisions that need to be proven success in achieving that goal.

The changes occur after the company's IPO are the condition and position of the company in terms of corporate financial reporting. To determine the company's financial performance, it is necessary to do an analysis of the financial statements in general; Brigham and Houston (2001:78) said that steps to do financial statements analysis are performance comparisons with other companies in the same industry and evaluation predisposition of the company's financial position all the time.

a. Operating Return On Assets

The rate of return on operating assets is the ratio of operating income to total assets. The rate of return on assets is defined as operating income results reflect the operations of the investment rate of return of the total investment in the company (Sutrisno, 2012).

Operating profit is the difference between the net sales and cost of goods sold plus expenses before depreciation or amortization. Operating profit is derived from the income statement. Total assets are the sum of an item or property owned by a company that has a money value reflected in the balance sheet of the firms. The greater rate return on assets can indicate that the company is able to demonstrate an increase in the efficiency of the company's assets. It can be also used to generate an operating profit that can diminish the ability of the company to manage the assets.

b. Operating Cash Flow to Total Assets

The cash flow to total assets measures the cash flows generated by the firm's assets. A healthy firm would be expected to generate positive cash flow. To calculate operating cash flow to total assets, divide the firms cash flow from operations by its total assets. If the firms have a high cash flow, the firm are generating a higher return on your assets than similar sized companies. If the firms have a low cash flow, the firms generating a lower return on its assets than other firms that indicating inefficiencies in the firms operations.

c. Sales Growth

Sales growth is the ratio of sales of the current year minus the previous year's sales divided by the prior year's sales. Sales growth ratio indicates a company's ability to improve its operating performance. The greater ratio of sales growth is the firm in performance, meaning the company is able to improve its operating performance, which the company is economically able to increase operating income. Conversely, if the ratio gets smaller sales growth, it means the company is not able to sustain their operating performances, which suggest the company is not economically able to maintain its operating performance (Sutrisno, 2012).

d. Total Assets Turnover

This is a financial ratio that measures the efficiency of company's use of its assets in generating sales income to the company. If the total assets turnover is high compared to other firms. It can be indicate that you are using not too many assets to generate sales. Yet, if the firms have a low total assets turnover. It indicate that capital is invested in too many assets in relation to what they need.

2.1.4 The Relationship between Initial Public Offerings and Operating Performance

Operating performance ratios can determine the operating performance of the company after the IPO. Basically, IPO is conducted to get additional funds from the public. Going public typically leads to a significant change in the company's ownership structure. The reduction in management ownership level is a result of going public likely to lead to the agency problem described by Jensen and Meckling (1976). Jain and Kini (1994) suggest that firm tend to use opportunity as well as the market timing hypotheses making firm performance tend to explain decline after the offering.

2.2 Previous Research

Some researches on the performance of firms after making IPO are found in the literature. Jain and Kini (1994) investigate 682 firms making IPO in the period 1976-1988 in New York Stock Exchange to determine whether the company making IPO have decline in operating performance in a few years after the IPO. Jain and Kini use five variables as measures operating performance, namely operating return on assets, operating cash flow to total assets, sales growth, assets turnover and capital expenditures. The result found that there is decreasing of operating performance after making IPO. They said that decreasing of operating performance as a result management's efforts to show good financial performance in the period before the IPO. They suspect that the practice of earnings management in the period before the IPO is one cause of the inability of the company to maintain operating performance after the IPO. It means the

management company use accounting policies to increase earning reported as an effort to demonstrate to investor that the company has good financial performance.

Kurtaran and Er (2008) investigate 205 firms went public in the period 1999-2000 in Istanbul Stock Exchange. The findings for the operating performances in this research were tested with respect to both the post-issue management ownership and the underpricing level. They use six variables as measures of operating performance, such as operating return on assets, operating profit deflated by total assets at the end of fiscal year, profit margin, equity capital turnover, asset turnover and operating cash flow to total assets. Using a number of operating performance measures, they compared the performances for three years after the IPO relative to pre-IPO year. They found some significant declines in the post-issue operating performances. Overall, they come up with a result that the Turkish IPO firms did not sustain their pre-IPO performances. There are some increases in sales numbers and capital expenditures number after the IPO year in comparison to pre-IPO level while there are some decreases in profitability level after the IPO. However, investors appear to value firms going public based on their pre-IPO performance level. While in fact, the pre-IPO performance levels can not formed expectations to investor.

Gumanti and Alkaf (2011) investigate 85 firms making IPO and SEO in the period 1990-2006 in Indonesia Stock Exchange. This objective research is to test the signaling theory, whether underpricing can give signal on the company making SEO. The measures of this research are using two standards, such as raw initial return and market adjusted initial return. In consistently, the results showed that on average of IPO firms is underpricing as big as 22.35%, while at SEO, the level of underpricing is 13.35%. The underpricing level during IPO and SEO are not statistically different. The company with the underpricing higher level during IPO will lower as much as the company during SEO. Overall, the results support the signaling theory has not been successful in the IPO.

The studies that focus on the operating performance of IPO, there are Jain and Kini (1994), Kurtaran and Er (2008), Gumanti and Alkaf (2011) amongst

other generally found that there is a declining in the operating performance in the period after the company's IPO. The company's inability to maintain the operating performance achieved in the period before the IPO is likely caused by the actions that lead to improved profitability.

2.3 Conceptual Framework

Based on the theoretical study shown previously, it can be described in the conceptual framework of this study is as follows.
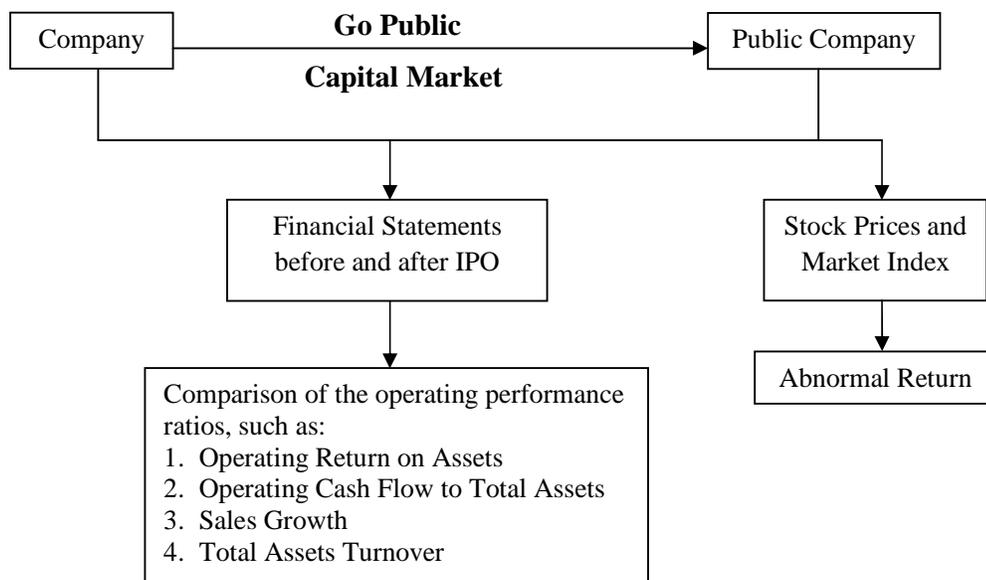
Figure 2.1 Conceptual Framework

In conducting business, the company will need funds. One alternative that can be selected by the company to meet the needs of their funds is by going public or making an initial public offering through the stock market. This needs to be done to get conclusions about the condition of the company before and after going public.

Operating performance would indicate that the company's market performance can be measured by reviewing the company's stock price in the capital market. Through the stock price and the market index can be calculated abnormal return when the company is going public. Operating performance of the company after going public is expected to be better than the operating

performance when the company do the first offering because the company has secured additional capital from IPO activity.

To analyze the operating performance, this study uses operating performance ratios covering operating return on assets, operating cash flow over total assets, sales growth, and total asset turnover. From these ratios it can be compared the performance to determine if there are differences between the company's operating performance before and after the IPO/go public. Then it can be concluded whether the operating performance is steady, improving or decreasing.

The results of the company's operating performance comparisons before and after going public would be very important information for the capital market. It can be used as one of considerations in determining the strategy of investing in the stocks of IPO firms.

2.4 Hypotheses

2.4.1 Abnormal Return of IPO Firms

This offering price of shares in the primary market is the result of an agreement between the issuer to underwriter. After the initial offering, the stock traded in the secondary market where stock prices are determined by the strength of supply and demand of shares. The percentage difference between the stock prices on the secondary market compared to the price of the stock at the initial offering to the size of the initial return. If the stock price in the secondary market on the first day of stock trading is significantly higher than the offering stock price in the primary market is suffered by underpricing (Helen Sulistio, 2005)

On average, IPO's are underpriced. De Lorenzo and Fabrizio (2001) stated almost all previous studies is explain the underpricing as a result of the asymmetry in the distribution of information between the IPO performers, that are companies, underwriters and investors. For the companies, underpricing can be used as a marketing strategy to increase the investor interest in investing in IPO shares by giving a high initial return. Ritter (1998) said that an initial public offering (IPO) occurred when a security is sold to the general public for the first

time, with the expectation that a liquid market will developed. This means that on average investors who bought the shares in the initial/primary market will be received positive return. This evidence is found in all capital markets in the world including Indonesia.

Based on the literature review, the hypothesis proposed in this study is:

Ha$_1$: There is positive abnormal return on IPO date.

2.4.2 Operating Performance of IPO Firms

Firms making IPO will generate substantial funds and use that for various purposes such as long-term capital, company expansion and pay off debts. Jain and Kini (1994) argue that private firm that goes public results in the dilution of entrepreneur's ownership interest. They use operating performance ratios to measure the post-IPO performance. They found that operating return on assets and operating cash flow to total assets after IPO decreasing. However, sales growth and capital expenditure after the company making IPO have increasing relatively.

Operating performance ratios can determine the operating performance of the company after the IPO. Basically, IPO is conducted to get additional funds from the public. Going public typically leads to a significant change in the company's ownership structure. The reduction in management ownership level is a result of going public likely to lead to the agency problem described by Jensen and Meckling (1976). Jain and Kini (1994) suggest that firm tend to use windows of opportunity as well as the market timing hypotheses making firm performance tend to explain decline after the offering.

Some researches on the performance of firms after making IPO are found in the literature. Jain and Kini (1994) investigate 682 firms making IPO in the period 1976-1988 in New York Stock Exchange to determine whether the company making IPO have decline in operating performance in a few years after the IPO. Jain and Kini use five variables as measures operating performance, namely operating return on assets, operating cash flow to total assets, sales growth, assets turnover and capital expenditures. The result found that there is decreasing of operating performance after making IPO. They said that decreasing of operating performance as a result management's efforts to show good financial performance

in the period before the IPO. They suspect that the practice of earnings management in the period before the IPO is one cause of the inability of the company to maintain operating performance after the IPO. It means the management company use accounting policies to increase earning reported as an effort to demonstrate to investor that the company has good financial performance.

Mikkelson et al. (1997) examine firms going public during the years 1980 to 1983, and found that the post-IPO decline in operating performance is unrelated to managerial ownership. Instead, they find that the variation in operating performance after going public is explained mostly by the size and age of the firms. In other word, funds generated from IPO shall be used to productive positive activity.

Other studies seem to agree that IPO firms are unable to improve or even maintain their financial performances after the issue. Evidence in other emerging countries support this contention. For example, in China (Wang 2005), in Malaysia (Ahmad 2011), in Turkey (Kurtaran and Er 2008), all report the IPO firms' inability in maintaining their financial performance. Exception of previous study is Zuobao et al. (2003) who document improvement of financial performance among privatized firms in China.

Operating performance would indicate that the company's market performance can be measured by reviewing the company's stock price in the capital market. Through the stock price and the market index can be calculated abnormal return when the company is going public. Operating performance of the company after going public is expected to be better than the operating performance when the company do the first offering because the company has secured additional capital from IPO activity.

The ratio used by Jain and Kini (1994) will be examined in this study to measure the performance of companies that making IPO. In this study, the operating performance ratios used include operating return on assets, operating cash flow to total assets, sales growth, and total asset turnover. The study predicts that given large sum of money generated from IPO, the firms should receive fresh

fund to be used for various purposes with intention to improve their financial performances. Investors would not believe that they will be fooled by mangement where the money from IPO is not used for productive activities in order to strengthen and enlarge the firm.

Based on the literature review, the hypotheses proposed in this study are:

Ha_2 : The operating return on assets of the company after going public is higher than before going public.

Ha_3 : The operating cash flow to total assets after going public is higher than before going public.

Ha_4 : Sales Growth of the company after going public is higher than before going public.

Ha_5 : Total asset Turnover Company after going public is higher than before going public.

CHAPTER III
RESEARCH METHODS

3.1 Research Design

This study examines the operating performance before and after going public in Indonesia Stock Exchange (IDX) for the period 2007-2010 and this is a research-based hypothesis testing. This study uses secondary data from the IDX.

3.2 Population and Sample

The population in this study will be all companies making IPO at IDX for the period 2007-2010. Sampling technique is the purposive sampling with the following criteria:

a. The firm must be listed on stock exchange to make sure the availability of prospectus and financial report for the purpose of analysis.

b. The Financial reports have to show in Rupiahs. It makes easier to calculate operating performance ratios of the IPO firms.

c. The firm that listing on Stock Exchange not do the right issue and relisting.

d. Availability the sector stock price index on IPO firms.

e. The firms are not in financial sectors.

3.3 Types and Sources of Data

The study uses secondary data from financial report of the period 2007-2012 and the offering price of the company making IPO for the period 2007-2010. The data are obtained from the IDX website like www.idx.co.id. Company's stock price movement of data sample and stock price index (IHSS) are obtained through the site www.finance.yahoo.com.

3.4 Operational Definition of Variables

3.4.1 Abnormal Return

Abnormal return can be used as the calculation of stock performance. Gumanti (2011:57) defines the abnormal return as the excess of actual return over

the expected return of the investors. Given no data on previous trading of shares, in this study market return is used as proxy for expected return. The steps used in calculating abnormal return are as follows.

a. Abnormal Return (AR_{it})

$AR_{it} = R_{it} - R_{mt}$
Where;
   AR_{it} = abnormal return of stock i at period t

   R_{it} = Stock return i at period t

   R_{mt} = market return of stock i at period t

b. Stock Return (R_{it})

$R_{it} = \dfrac{P_t}{P_{t-1}} - 1$
Where;
   R_{it} = Stock return i at period t

   P_t = Stock price i at period t

   P_{t-1} = Stock price i at period $t-1$

c. Market Return (R_{mt})

$R_{mt} = \dfrac{IHSS_t}{IHSS_{t-1}} - 1$
Where;
   R_{mt} = Market return at period t

   $IHSS_t$ = Sectoral Stock price index at period t

   $IHSS_{t-1}$ = Sectoral Stock price index at period $t-1$

3.4.2 Operating Performance

Operating performance of the company reflects the company's ability to generate short-term profits and will be measured by operating performance ratio (Jain and Kini, 1994). Operating performance is measured using four variables, namely operating return on assets, operating cash flow to total assets, sales growth and total assets turnover. Operating Return on assets is measured as the ratio of operating income over total asset. Operating Cash Flow to Total Assets is measured as the ratio of operating cash over total assets. Sales Growth is measured as the difference between sales for period t minus sales period $t-1$ divided by sales period $t-1$. Total Assets Turnover is measured the ratio between sales and total assets

a. Operating Return on Assets

Operating return on assets $= \dfrac{Operating\ Income}{Total\ Assets}$

Where;

Operating income$_{it}$ = operating income of stock i at period t

Total asset$_{it}$ = total asset of stock i at period t

b. Operating Cash Flow to Total Assets

Operating Cash Flow to Total Assets $= \dfrac{Operating\ Cash\ Flow}{Total\ Assets}$

Where;

Operating cash flow$_{it}$ = operating cash flow of stock i at period t

Total asset$_{it}$ = Total asset of stock i at period t

c. Sales Growth

Sales growth $= \dfrac{S_{it} - S_{it-1}}{S_{it-1}}$

Where;

S_{it} = net sales i at period t

S_{it-1} = net sales i at period $t-1$

d. Total Assets Turnover

Total asset turnover $= \dfrac{Net\ Sales_{it}}{Total\ Assets_{it}}$

Where;

Net Sales$_{it}$ = net sales of stock i at period t

Total Asset$_{it}$ = total asset of stock i at period t

3.5 Data Analysis Methods

3.5.1 Data Normality Test

Data normality test is used to test whether the data that will be examined have normal distribution or not. If the data are normally distributed, the research hypotheses tests will use one-sample t-test and paired amples t-test. But if the data are not normally distributed, the hypotheses tests will use one-sample Wilcoxon test and paired samples Wilcoxon test. The steps to calculate by the Shapiro-Wilk tests are as follows:

a. Formulate Hypotheses

   H_0 : the data are normally distributed

   H_a : the data are not normally distributed

b. Determine level of significance (α)

   The significance levels used in this study are 1%, 5%, and 10%.

c. Testing Criteria

   H_0 will be accepted if p-value $> \alpha$

   H_0 will be rejected if p-value $< \alpha$

d. Draw Conclusion.

   If p-value $> \alpha$, the distribution of data is normal.

   If p-value $< \alpha$, the distribution of data is not normal.

3.5.2 Hypotheses Tests

   The test of hypotheses are organized as follows.

a. Abnormal Return Test

   1) One Sample T-test and One Sample Wilcoxon Test

   One sample T-test is used when the distribution of the data is normal, while one sample Wilcoxon Test is used when the distribution of the data is not normal. The steps for the test are as follows:

   a) Formulate Hypotheses

      H_{01} : $AR_{it} = 0$, there is no abnormal return on IPO date

      H_{a1} : $AR_{it} \neq 0$, there is abnormal return on IPO date.

   b) Determine Level of Significance

      The significance level used in this study is 1%, 5%, and 10%.

   c) Testing Criteria

      Hypothesis test is using one tailed test. The criteria are:

      H_0 will be accepted if p-value $> \alpha$

      H_0 will be rejected if p-value $< \alpha$

   d) Draw Conclusion

      If p-value $> \alpha$, there is no abnormal return on IPO date.

      If p-value $< \alpha$, there is abnormal return on IPO date.

2) Paired Samples Wilcoxon Test and Paired samples T-test.

Paired samples T-test is used when the distribution of the data is normal, while paired samples Wilcoxon Test is used when the distribution of the data is not normal. The steps to test as follows:

a) Formulate Hypotheses

H_{02} : The operating return on assets after going public is lower or equal than before going public.

Ha_2 : The operating return on assets after going public is higher than before going public.

H_{03} : The operating cash flow to total assets after going public is lower or equal than before going public.

Ha_3 : The operating cash flow to total assets after going public is higher than before going public.

H_{04} : Sales Growth after going public is lower or equal than before going public.

Ha_4 : Sales Growth after going public is higher than before going public.

H_{05} : Total assets turnover after going public is lower or equal than before going public.

Ha_5 : Total asset turnover after going public is higher than before going public.

b) Determine Level of Significance

The significance level used in this study is 5% (α=5%).

c) Testing Criteria

Hypothesis test is using one tailed test. The criteria are:

H_0 will be accepted if p-value > α

H_0 will be rejected if p-value < α

d) Draw Conclusion

(1) If p-value > α, The operating return on assets, the operating cash flow to total assets, sales growth, and total assets turnover after going public is lower or equal than before going public.

(2) If p-value < α, the operating return on assets, the operating cash flow to total assets, sales growth, and total assets turnover after going public is higher than before going public.

3.6 Framework for Problem Solving

Based on the data analysis methods and data analysis, the problem solving framework is as follows:
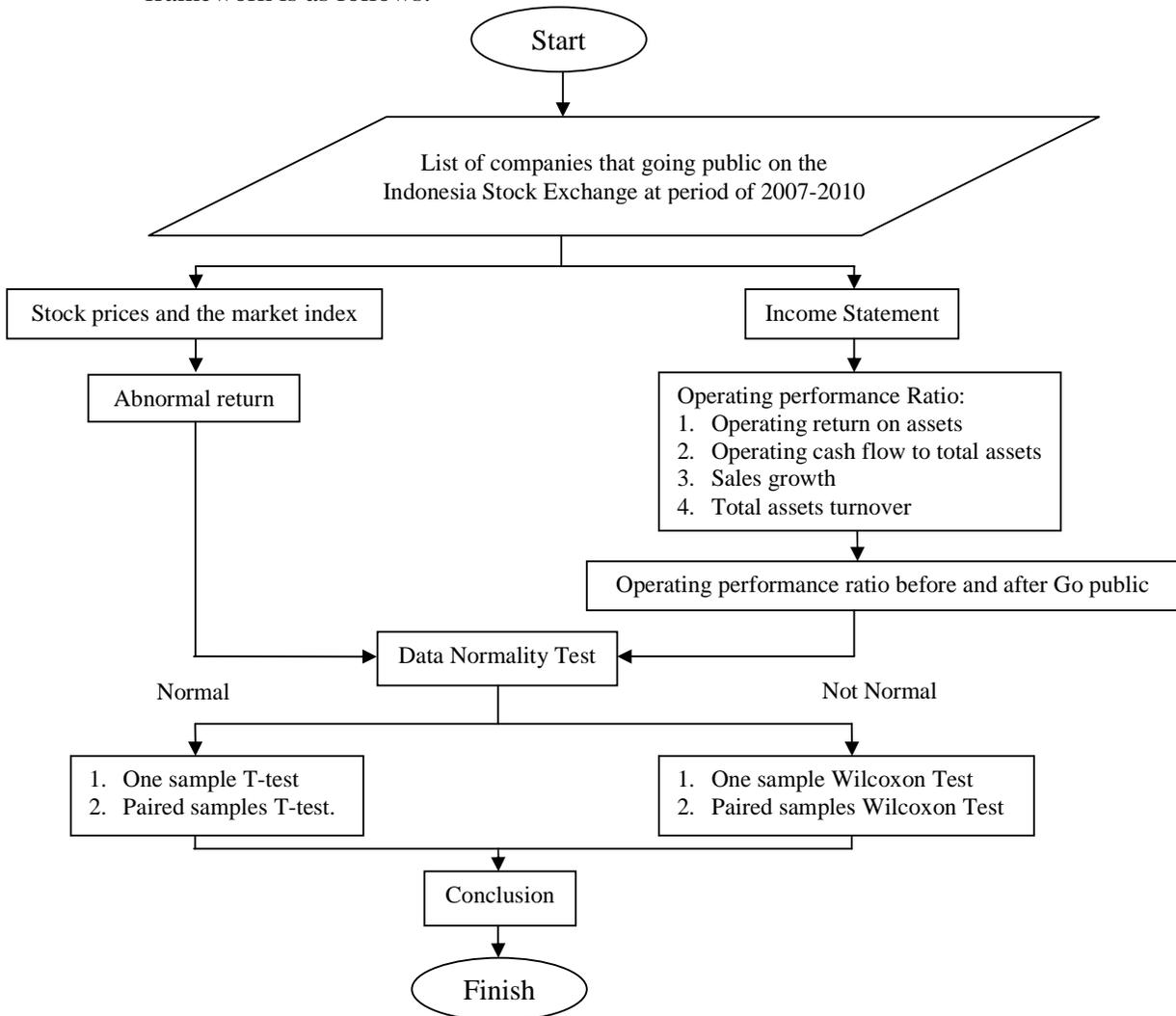
Figure 3.1 Frameworks for Problem Solving

Based on research methods and data analysis, the descriptions of framework for problem solving that can be presented are;

1. Start.
2. The study will begin by collecting data of the company that conducted an IPO in 2007-2010 in Indonesia Stock Exchange.
3. The next data will needed is the price offered at the time of initial public offering and the next few days in Indonesia Stock Exchange, as well as the company's financial report before and after the IPO in the period 2007-2012. The data will get from Prospectus.
4. Stock price data is needed to calculate the stock return, and then the stock price index gained to calculate market return. From that calculation, we can calculate and getting the expected return E (R_{it}) and abnormal return (AR_{it}). Furthermore, financial report will be separated by the time before and after IPO, and then calculated using the operating performance ratios in accordance with the formula described earlier.
5. Financial statement data are obtained first separated according the period before going public financial statements and financial statement after go public later financial ratios calculated using operating performance in accordance with the formula described earlier.
6. There will be known abnormal stock returns and operating performance ratios before and after going public.
7. After all, researcher will test the data whether the data is normally distributed or not. Abnormal return and operating performance ratios will be tested using Shapiro-Wilk. If the abnormal returns are normally distributed, the research hypothesis test will use one-sample t-test and paired samples t-test. But if the abnormal returns are not normally distributed, the hypotheses tests will use one-sample Wilcoxon test and paired samples Wilcoxon test.
8. Based on the result, it can be drawn the conclusion and solve the problem.
9. Stop.

CHAPTER IV

FINDINGS AND DISCUSSION

4.1 Description of Sample

The population of this study is all firms making IPO in Indonesian Stock Exchange for period 2007-2010. There are 77 firms, of which 22 firms making IPO in 2007, 19 firms in 2008, 13 firms in 2009 and 23 firms making IPO in 2010. Data on population of study are shown in Appendix 1.

The sample of this study is determined using purposive sampling methods. Table 4.1 shows the process of sample selection of which the final and usable sample consists of 33 firms representing about 45 percent of population. This study is unable to obtain prospectuses of the firm as they are not available in the IDX website.

Table 4.1 Sample Selection Process

No.	Description	Number of Firms
1	The number of IPO firms in Indonesia Stock Exchange at period 2007-2010	77
2	The firms are unable for prospectus and financial report data	26
3	The firm is doing Right Issue	1
4	The firm is relisting	1
5	The firms have financial report in Dollars	6
6	The firms have incomplete stock price data	4
7	The firms are in financial sectors	6
8	Final Sample	33

After the selection of the sample, this study explores the sample by examining their distribution based on year of offerings and industry classification. Table 4.2 shows the distribution of sample firms based on year of IPO (Panel A) and industrial sector (Panel B). Panel A shows that year 2010 is recorded as the year with the largest IPO firms but the selected IPO firms in this year is very low (17 percent), whilst year 2009 has the lowest IPO. Panel B shows that one sector, namely trade, service and investment has the largest IPO firms in which there are 17 firms making IPO during the period of analysis. One industrial sector is

excluded, namely financial sector as it different characteristics in terms of assessment based on accounting numbers.

Table 4.2 Distribution of Sample Firm Based on Years Sector (n=33)

Panel A : Based on IPO years			
Year	**Population**	**Samples**	**%**
2007	22	14	64
2008	19	12	63
2009	13	3	23
2010	23	4	17
2007-2010	77	33	43
Panel B : Based on Sector			
Sector	**Population**	**Sample**	**%**
Agriculture	4	4	100
Mining	11	2	18
Basic Industry and Chemicals	8	4	50
Miscellaneous Industry	1	1	100
Consumer Goods Industry	2	1	50
Property, Real Estate and Building Construction	15	11	73
Infrastructure, Utilities & Transportation	10	4	40
Finance	9	-	-
Trade, Services & Investment	17	6	35
Total	77	33	43

4.2 Results of Data Analysis

4.2.1 Descriptive Statistics of Abnormal Return

Abnormal return is measured as the difference between actual return and expected return. Expected return is measured using market return on the corresponding day. This model assumes that the best estimator to estimate a stock return is the return on a market index at that time. In this study, abnormal return is calculated over 5 days, from the IPO date to 5 days after the IPO. For completeness reason, the actual return of IPO firm is also presented. Table 4.4 shows the descriptive statistics of abnormal return and actual returns surrounding IPO date.

Table 4.3 Descriptive Statistics of Abnormal Return and Actual Return

Panel A : Abnormal Return					
Abnormal Return (Day)	**Mean**	**Median**	**Standard Deviation**	**Minimum**	**Maximum**
1	0.063	0.025	0.126	-0.09	0.35
2	0.112	0.026	0.214	-0.17	0.64
3	0.108	0.042	0.219	-0.19	0.65
4	0.136	0.065	0.261	-0.19	0.86
5	0.127	0.032	0.286	-0.31	0.92
Panel B : Actual Return					
Actual Return (Day)	**Mean**	**Median**	**Standard Deviation**	**Minimum**	**Maximum**
1	0.059	0.016	0.129	-0.11	0.35
2	0.104	0.013	0.220	-0.20	0.64
3	0.098	0.000	0.224	-0.21	0.68
4	0.124	0.014	0.265	-0.20	0.88
5	0.127	0.032	0.286	-0.31	0.92

Source: Appendix 3 and 4

Table 4.3 indicates that the highest mean of abnormal return is 13.6% on the 4th trading day. The mean abnormal return on IPO date is lower than the other days after IPO. The mean abnormal return of first trading day is 6.3%. The all median of abnormal return have positive value. The highest median value is recorded in day 4 (6.5%), whilst the lowest is recorded in day one of being a public corporation.

On average, all of the abnormal returns have positive value on the days surrounding the IPO. It can be concluded that the investors have positive response to IPO firms in Indonesia Stock Exchange.

Relatively similar patterns are found for actual return. The lowest average actual return is found in day one of trading. The highest mean of actual return is recorded in day five of trading. The median value patterns are little bit different but the picture is relatively the same. These findings indicate that the use of abnormal return and actual return in an IPO setting tend to generate similar results.

4.2.2   Descriptive Statistics of Operating Performance Ratios

The main issue of this study is examination of the behavior of IPO firms' operating performance after the IPO. This study employs four types of operating

performance ratios, namely operating return on assets, operating cash flow to total assets, sales growth, and total assets turnover. The first analysis performed in relation to operating performance is the descriptive statistics of each operating performance proxy.

The value of each proxy is differentiated based on year of analysis. Table 4.4 shows descriptive statistics of operating performance ratios before and after IPO.

Table 4.4 Descriptive Statistics of Operating Performance Ratios

Variable	Period	Mean	Median	Standard Deviation	Minimum	Maximum
ORA	T-2	0.080	0.061	0.087	-0.07	0.30
	T-1	0.105	0.080	0.084	-0.01	0.31
	T0	0.087	0.073	0.065	-0.03	0.27
	T+1	0.095	0.080	0.085	-0.03	0.35
	T+2	0.084	0.083	0.060	-0.04	0.20
OCFTA	T-2	0.045	0.030	0.129	-0.21	0.28
	T-1	0.049	0.018	0.169	-0.23	0.44
	T0	0.021	0.020	0.106	-0.27	0.25
	T+1	0.057	0.052	0.091	-0.12	0.29
	T+2	0.075	0.065	0.062	-0.06	0.20
Sales Growth	T-2	0.563	0.359	1.134	-0.28	6.56
	T-1	0.375	0.304	0.436	-0.29	2.26
	T0	0.512	0.345	0.948	-0.20	5.35
	T+1	0.535	0.329	1.627	-0.32	9.46
	T+2	0.072	0.144	0.362	-0.89	0.95
TATO	T-2	1.065	0.601	1.214	0.01	4.75
	T-1	1.155	0.589	1.537	0.01	7.80
	T0	0.814	0.537	0.823	0.03	3.69
	T+1	0.831	0.589	0.760	0.09	3.30
	T+2	0.809	0.554	0.797	0.02	3.63

Source: Appendix 6
Note: ORA stands for operating return on assets, OCFTA stands for operating cash flow on total assets, TATO stands for total assets turn over.

Table 4.4 shows the mean of operating return on assets (ORA) are fluctuating. The figures tend to increase prior to the offering but started to decline approaching to the offering and regain momentum after that. The behavior of median value is relatively similar. The study finds that there are still a number of firms that experience negative operating performance as all-minimum values of

ORA are negative. The highest maximum value occurred in the period of one year after IPO.

The mean value of operating cash flow to total assets (OCFTA) is tending to fluctuate in the years before the offering but it increases after the IPO date. The highest standard deviation of OCFTA occurred in period before IPO. In similar fashion with ORA, the minimum value of OCFTA is negative.

The mean and median values of sales growth tend increase immediately after the offering. It seems that the sample firms are unable to increase their sales in the period two years after the issue. The median values tend to follow the behavior of mean values.

Furthermore, the average of total assets turnover (TATO) tends to decrease after the IPO date. It increases in the period one year after the issue but it loss the momentum in period two year after the offering. The patterns of median of TATO are relatively similar to the behavior of mean values.

4.2.3   Data Normality Test

Data normality test is used to examine whether the data have normal distribution or not. This research uses Shapiro-Wilk test to detect whether the distribution of data is normal or not. The Shapiro-Wilk test is conducted because the numbers of data are less than 50. The first normality test is abnormal return. The level of significance is 5%. The results of normality test of abnormal return and actual return are shown in the Table 4.5.

Table 4.5 Data Normality Test Results of Abnormal Return

Panel A : Abnormal Return			
Day	**Statistics**	**p-value**	**Conclusion**
1	0.789	0.000	Data are not normal
2	0.796	0.000	Data are not normal
3	0.848	0.000	Data are not normal
4	0.841	0.000	Data are not normal
5	0.912	0.011	Data are not normal

Panel B : Actual Return			
Day	**Statistics**	**p-value**	**Conclusion**
1	0.808	0.000	Data are not normal
2	0.769	0.000	Data are not normal
3	0.831	0.000	Data are not normal
4	0.808	0.000	Data are not normal
5	0.857	0.000	Data are not normal

Source: Appendix 3 and 4

Table 4.5 shows all the data are not normally distributed either in terms of abnormal return or actual return. The probability values are not greater than the level of significance which means null hypothesis is rejected. Therefore, to test the first hypothesis this study relies on non-parametric test of Wilcoxon one sample.

The second normality test is operating performance ratios, namely operating return on assets, operating cash flow to total assets, sales growth, and total assets turnover. The level of significance is 5%. Normality test results of proxies for operating performance are presented in Table 4.6.

Table 4.6 Normality Test Results of Operating Performance Ratios

Variable	**Period**	**Probability**	**Data Distribution**
ORA	T-2	0.094	normal
	T-1	0.058	normal
	T0	0.170	normal
	T+1	0.018	not normal
	T+2	0.899	normal
OCFTA	T-2	0.395	normal
	T-1	0.014	not normal
	T0	0.267	normal
	T+1	0.786	normal
	T+2	0.476	normal
Sales Growth	T-2	0.000	not normal
	T-1	0.000	not normal
	T0	0.000	not normal
	T+1	0.000	not normal
	T+2	0.000	not normal

Variable	Period	Probability	Data Distribution
	T-2	0.000	not normal
	T-1	0.000	not normal
TATO	T0	0.000	not normal
	T+1	0.000	not normal
	T+2	0.000	not normal

Source: Appendix 6

Note: ORA stands for operating return on assets, OCFTA stands for operating cash flow on total assets, TATO stands for total assets turn over.

Table 4.6 shows the data with normal distribution are found for ORA (t_{-2}), ORA (t_{-1}), ORA (t_0), ORA (t_{+2}), OCFTA (t_{-2}), OCFTA (t_0), OCFTA (t_{+1}) and OCFTA (t_{+2}). However, most of the data are not normally distributed, which are found for ORA (t_{+1}), OCFTA (t_{-1}), SG (t_{-2}), SG (t_{-1}), SG (t_0), SG (t_{+1}), SG (t_{+2}), TATO (t_{-2}), TATO (t_{-1}), TATO (t_0), TATO (t_{+1}) and TATO (t_{+2}). Given the data with non-normal distribution are larger than data with normal distribution, this study will use non-parametric test of Wilcoxon pair test in testing the proposed hypotheses. For the completeness reason, the analysis based on parametric tests of t-test for pair sample is also presented.

4.2.4   Abnormal Return Test

The first objective of this research is to examine whether any abnormal return after going public. This test uses one sample t-test and Wilcoxon one sample as there are data with normal and non-normal distribution. The results of one sample t-test and Wilcoxon one sample of abnormal return are present in Table 4.7.

Table 4.7 Mean and Median Test of Abnormal Return and Actual Return

Period	Abnormal Return		Actual Return	
	Mean (Median)	p-value	Mean (Median)	p-value
1	0.063 (0.025)	0.011**	0.059 (0.016)	0.046**
2	0.112 (0.026)	0.007*	0.104 (0.013)	0.056***
3	0.108 (0.042)	0.026**	0.098 (0.000)	0.122
4	0.136 (0.065)	0.013**	0.124 (0.014)	0.071***
5	0.122 (0.059)	0.014**	0.127 (0.032)	0.051***

*significant at 1%; **significant at 5%; ***significant at 10%; using one-tailed test.
Source: Appendix 3 and 5

The results of test on abnormal return and actual return are slightly different. All abnormal returns are significant at 5% level over five days of

analysis. However the actual return is significant at 5% level only on the first trading day. Days 2, 4 and 5 are significant at 10% level but day 3 is insignificant.

Overall, the abnormal return is different from zero. It shows that H_0 is rejected; it means there are significant abnormal returns on the IPO dates. Thus, the first alternative hypothesis (H_{a1}) that there is abnormal return on IPO date in Indonesia Stock Exchange is accepted.

4.2.5 Operating Performance Ratios Test

The second objective of this research is to examine whether the operating performance ratios are improving after going public. Table 4.8 indicates that the results of test on data distribution of ORA, OCFTA, Sales Growth and TATO are not normal. This suggests that the hypothesis will be analyzed using Wilcoxon Paired Samples.

Table 4.8 Distribution Data at each Time of Testing

Variable	Current Year of the Initial Public Offerings			
	from -2 to -1	from -1 to 0	from -1 to +1	from -1 to +2
ORA	not normal	not normal	not normal	not normal
OCFTA	not normal	not normal	not normal	not normal
Sales Growth	not normal	not normal	not normal	not normal
TATO	not normal	not normal	not normal	not normal

Source: Appendix 7
Note: ORA stands for operating return on assets, OCFTA stands for operating cash flows on total assets, TATO stands for total assets turn over.

Given the distribution of data is not normal, the tests for operating performance of firms making IPO will be the paired samples Wilcoxon test. The results of hypotheses testing on operating performance ratios are shown in Table 4.9.

4.9 The Different Test of Operating Performance Companies making IPO (n=33)

Measure of Operating Performance	Year Relative to Completion of IPO							
	from -2 to -1		from -1 to 0		from -1 to +1		from -1 to +2	
	Panel A : Operating Return on Assets (ROA)							
Median (%)	0.061	0.080	0.080	0.073	0.080	0.080	0.080	0.083
Median Difference (%)	0.019		-0.007		0		0.003	
Average (%)	0.080	0.105	0.105	0.087	0.105	0.095	0.105	0.084
Average Difference (%)	0.025		-0.018		-0.010		-0.021	
p-value (median)	0.001		0.020**		0.148		0.018**	
p-value (mean)	0.001		0.009		0.127		0.010	
Conclusion	H_0 rejected		H_0 rejected		H_0 accepted		H_0 rejected	

Measure of Operating Performance	Year Relative to Completion of IPO							
	from -2 to -1		from -1 to 0		from -1 to +1		from -1 to +2	
	Panel B : Operating Cash Flow to Total assets							
Median (%)	0.030	0.018	0.018	0.020	0.018	0.052	0.018	0.065
Median Difference (%)	-0.012		0.002		0.034		0.047	
Average (%)	0.045	0.049	0.049	0.021	0.049	0.057	0.049	0.075
Average Difference (%)	0.004		-0.028		0.008		0.026	
p-value (median)	0.497		0.161		0.203		0.140	
p-value (mean)	0.44		0.120		0.358		0.185	
Conclusion	H_0 accepted		H_0 accepted		H_0 accepted		H_0 accepted	
	Panel C : Sales Growth							
Median (%)	0.359	0.304	0.304	0.345	0.304	0.329	0.304	0.144
Median Difference (%)	-0.055		0.041		0.025		-0.160	
Average (%)	0.563	0.375	0.375	0.512	0.375	0.535	0.375	0.072
Average Difference (%)	-0.188		0.137		0.16		-0.303	
p-value (median)	0.208		0.475		0.224		0.001*	
p-value (mean)	0.188		0.218		0.298		0.002	
Conclusion	H_0 accepted		H_0 accepted		H_0 accepted		H_0 rejected	
	Panel D : Total Assets Turnover							
Median (%)	0.601	0.589	0.589	0.537	0.589	0.589	0.589	0.554
Median Difference (%)	-0.012		-0.052		0		-0.035	
Average (%)	1.065	1.155	1.155	0.814	1.155	0.831	1.155	0.809
Average Difference (%)	0.09		-0.341		-0.324		-0.346	
p-value (median)	0.468		0.000*		0.003*		0.002*	
p-value (mean)	0.256		0.010		0.021		0.015	
Conclusion	H_0 accepted		H_0 rejected		H_0 rejected		H_0 rejected	

*significant at 1%; **significant at 5%;

Source: In appendix 8 and 9

Note: ORA stands for operating return on assets, OCFTA stands for operating cash flows on total assets, TATO stands for total assets turn over.

Based on the results shown in Table 4.9, the following conclusions can be generated. The changes in operating performance of issuing firms are measured relative to year t_{-1}. Panel A presents the median difference in operating return on assets are 0.019%, -0.007%, 0% and 0.003% for years t_{-2}, t_0, t_{+1} and t_{+2} relative to year t_{-1}, respectively. The median difference for the IPO firms decline over time period. Year t_{-2} is significant at 1% then t_{+2} are significant at 5% level. These findings are shown by the null hypothesis is rejected exclude on year t-1 to t_{+1}.

Panel B of Table 4.9 shows the results of tests on the median difference in operating cash flows deflated by total assets. It shows the median differences are increased in the post-issue operating performance of IPO firms which of -0.012%,

0.0025, 0.034% and 0.047% for years t_{-2}, t_0, t_{+1} and t_{+2} relative to year t-1, respectively. Yet, the changes are all insignificant.

In Panel C, the median difference increases in sales measured relative to year t_{-1} are   -0.051%, 0.041% and 0.025% for year's t_{-2}, t_0 and t_{+1} respectively. But, the median decrease drastically on year t_{+2} at -0.160%. From that, only one year significantly at the 1% level, that is year from t_{-1} to t_{+2}. Moreover, it can be seen that the IPO firms exhibit inferior post-IPO operating performance relative to the year prior to going public.

In Panel D, the median difference in total assets turnover is reported. The median difference decreases by -0.035% over three-year from t_{-1} to t_{+2}. One of year is insignificantly, and other years are significant at the 1% level for year's t_0, t_{+1} and t_{+2} relative to year t_{-1}. Despite the high sales growth, the decline in total assets turnover is indicative of the fact that IPO firms increase their assets faster than their sales.

4.3 **Discussions**

Initial public offering is one of the corporate actions, which can be use as information for the investor making investment decisions in the stock market. The objectives of this research are to analyze the existence of abnormal return on IPO date in Indonesia Stock Exchange. Another objective is to analyze operating performance covering operating return on assets, operating cash flow to total assets, sales growth, and total assets turnover improving after going public.

4.3.1 Abnormal Return on IPO Date

The first hypothesis testing conducted to see the existence of abnormal return on IPO date. The results of first hypothesis testing show that there is a significant abnormal return on the IPO date meaning there is underpricing on average. The average of abnormal return shows the positive value, it means that there is underpriced on the first trading days. In the same case, the average of actual return also have positive value with the probability value is 0.046 in table 4.7. Automatically it has lower than the level of significance at 5%.

Several researchers, such as Ibbotson, et al and Sakir (2003) found evidence that abnormal return is not significant after the IPO date. These findings indicate that the IPO event does not contain the information that resulted by the market react.

The first alternative hypothesis is accepted which this research proves that investor have various reacts to the announcement of firms going public. It can be seen from the abnormal return are positive on the IPO date. Based on the results of testing the first hypothesis, investors should consider IPO firms as reference in investment in stock market.

4.3.2 The Differences of Operating Performance Before and After IPO

Panel A describe the difference of ORA ratio tends to decrease significantly. Thus, operating return on assets after go public is not greater than before go public. This fact shows that the averages of firms are not able to improve the assets management used to get operating profit in the period before going public.

The firms should be able to improve assets management to get better operating profit in the period after going public. This is necessary because the firm also has a responsibility to its shareholders to increase its profit. Investors should be careful to fluctuations in the value of the ORA ratio and the funding allocation as an impact on the operating performance of the firms making IPO.

The result is in line with Jain and Kini (1994) who found that operating return on assets has declined significantly after the IPO. ORA ratio after go public is not better than before go public. This condition is very likely caused by effort of the firms to use most of funds for investment of debt payment making ORA to decline.

Panel B show the average difference of OCFTA ratio tends to decrease after going public. The average difference of OCFTA from the second year to the first year before going public is increasing in the IPO year, thus decreasing in the first year after going public, but it decrease drastically in the second year after going public ($p < 0.05$). Thus the hypothesis stating that operating cash flow to total assets after going public is higher than before going public is rejected. In

other words, this finding here indicates that on average firms are not able to improve asset utilization to increase operating cash flow.

This analysis result implies that the firms should be increase the efficiency assets utilization to maintain the operating cash flow especially after going public, because the firms are expect to improve its performance after obtaining additional funds from the shareholders. The investors should be looking at the amount of cash receipts from customers and cash payments to suppliers and employees as it may affect the cash flow from operating activities of firms making IPO.

Results of this research do not support Jain and Kini (1994) which concluded that there is a difference of operating cash flow to total assets before and after go public. Operating cash flow to total assets is decreasing significantly after the firms going public.

Panel C shows the average difference of sales growth from the second year to the first year before go public are increasing on the IPO date then increases again on the first year after the IPO (p<0.05). However, this research is unable to state that the proposed hypothesis stating that sales growth after going public is higher than beforerence.

Sales growth ratio after the IPO is not greater or equal than before the IPO caused by the firms on average increase sales after going public but the increasing is lower than in the period before going public. The firms should be able to optimize the assets utilization in maintain sales, as sales increase may affect the firms increasing sales growth. Investors should be looking in increasing firms sales at any time due to an increase in sales growth also depends on the size of firm's capital. If there are funds or money coming into the firms in large numbers and its funds are use to improve the firm's performance, the production capacity consequently will increase the firms' sales.

Panel D describes the average difference of TATO which indicates that TATO tends to decrease from second to first year. The average difference of TATO from the second to first year before going public has decreased in the IPO year, increased again in the first year after the IPO. Then the average difference TATO decreases in the second year after the IPO with a level significance 5%.

This makes the hypothesis that total assets turnover after going public has higher than before is rejected. This finding indicates that on average the firm's are unable to improve assets utilization to increase sales.

Based on analysis before, it can be summarized that the firms operating performance after going public is not better than before going public covering operating return on assets, operating cash flow to total assets, sales growth and total assets turnover. This finding tends to decline the firms operating performance after going public; it can attribute to firm's effort to maintain the financial performance before going public.

Some interpretations could be raised dealing with the findings of worsening financial performances after the IPOs. Firstly, we might argue that the pre-IPO financial performances have subtlety been managed so they are not reflecting the real performance of the firm. Previous studies have documented that in the case of IPO, earnings performances have been managed in the period prior to the offering, for example Teoh et al. (1998) or Friedlan (1993) in the US, Kamel (2009) in Egypt, or Gumanti (2001) in Indonesia. Nevertheless, some studies also suggest that this is not always the case, for example Ball and Shivakumar (2008) in US or Warganegara and Indriastari (2009) in Indonesia. Thus, it might be premature to assert that earnings management is common practice in IPO market.

Secondly, the other possible cause for lower performance of IPO firm is that the firm is unable to manage the funds for productive use in the short run or the benefit of fund management is not in effect over short period. It may take some years before the firm is able to earn economic benefits from the use of funds. This implies that the examination of after IPO financial performance shall be extended in longer period.

Overall, this study documents that the firm's financial performances tend to decrease after the IPO. This finding is similar as reported in Jain and Kini (1994), Mikhelson et al. (1997), Wang (2005) Kim et al. (2004), and Ahmad (2011). However, we might not be agree to assert that IPOs are unable to manage their financial performance as Zuobao et al. (2003) report of improving some key

financial performance ratios in the case of privatization in China. Thus, further elaboration is required to find out more evidence on the financial performances of IPO firms after the issue.

There some contains that need to put forward in related to the findings as follows.

a. This research time period is only 4 years from 2007 to 2010, which of 33 firms samples, while the previous studies used a sample around 100 firms. Therefore, it had been unable to reflect a longer stretch of time, and consequently the results obtained not reflect the varying conditions.

b. Investors tend to pay less attention to the information that goes into market so that stock prices formed in stock market can influenced by other factors, such as the global financial crisis in the form of sub-prime mortgage crisis. In addition, the global financial crisis in 2007-2010 may significantly on the firm's performance that going public, thus some of firms after making IPO had been unable to improve its performance significantly.

c. Ratios are used as a measure of operating performance in this research covering operating return on assets, operating cash flow to total assets, sales growth and total assets turnover. While using others ratios that could potentially be a measure of the operating performance, it will illustrate more complete its before and after going public, such as gross profit margin, net profit margin, operating profit margin, etc. the results could be different when other financial ratios are examined.

CHAPTER V
CONCLUSIONS AND SUGGESTIONS

5.1. Conclusions

This research is aimed to analyze the abnormal return and the effect of going public on operating performance of IPO firms in Indonesian stock exchange for period 2007-2010. A sample of 33 firms meeting the selection criteria is examined. Based on the results and discussion, the conclusions obtained are as follows.

a. There is abnormal return surrounding the IPO date. It means on average investors obtain positive return when they buy the stocks at the offer price and sell them immediately in the first five day at the secondary market.

b. Firms operating performance after going public tend to decrease but not all of the patters are significantly different between periods. Operating performance tend to increase approaching the offering date but decrease slightly after that. Operating return on assets, operating cash flow to total assets, sales growth and total assets turnover as proxies for operating performance indicate similar patterns both in the periods before and after the offering. This study is unable to conclude that the operating performance of the firms making IPO is different between before and after the offering.

5.2. Suggestions

Based on the results of data analysis, conclusions, and limitations, the suggestions can be presented as follows.

a. For the Investor, the findings of significant abnormal returns on other days after the IPO could be used as trading strategies when dealing with firm making IPO.

b. For the next study, it is recommended to improve the methods by conducting the following issues. First, next study shall be done with a longer observation period so it will have robust results with better generalization. Second, further research can use CAPM (Capital Assets

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Pricing Model) with a longer estimation period to measure abnormal return. Third, the next research can be done by focusing on a relatively stable economic condition for example by avoiding the effects of the global financial crisis. Fourth, future research may use other ratios that have the potential to be a measure of operating performance. Last, further study may focus on privatization as Zuobao et al. (2003) find that privatized firms tend to have better financial performances after the IPO date.

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APPENDIX

Appendix 1

Research Population of Firms Making IPO in Period 2007-2010

No	Code	Company Name	IPO Date	Sectors*
1	BISI	Bisi International Tbk	28-Mei-07	7
2	WEHA	Panorama Transportasi Tbk	31-Mei-07	3
3	BKDP	Bukit Darmo Property Tbk	15-Jun-07	7
4	SGRO	Sampoerna Agro Tbk	18-Jun-07	8
5	MNCN	Media Nusantara Citra Tbk	22-Jun-07	8
6	MCOR	Bank Multicor Tbk	03-Jul-07	2
7	PKPK	Perdana Karya Perkasa Tbk	11-Jul-07	6
8	LCGP	Laguna Cipta Griya Tbk	13-Jul-07	7
9	DEWA	Darma Henwa Tbk	26-Sep-07	7
10	BACA	Bank Capital Indonesia Tbk	04-Okt-07	1
11	GPRA	Perdana Gapuraprima Tbk	10-Okt-07	7
12	WIKA	Wijaya Karya (Persero) Tbk	29-Okt-07	8
13	ACES	Ace Hardware Indonesia Tbk	06-Nop-07	1
14	CTRP	Ciputra Property Tbk	07-Nop-07	7
15	PTSN	Sat Nusapersada Tbk	08-Nop-07	6
16	JSMR	Jasa Marga Tbk	12-Nop-07	1
17	JKON	Jaya Kontruksi Manggala Pratama Tbk	04-Des-07	7
18	CSAP	Catur Sentosa Adiprana Tbk	12-Des-07	8
19	ASRI	Alam Sutera Realty Tbk	18-Des-07	2
20	ITMG	Indo Tambangraya Megah Tbk	18-Des-07	6
21	SGIK	Duta Graha Indah Tbk	19-Des-07	2
22	COWL	CowellDevelopment Tbk	19-Des-07	8
23	BAEK	Bank Ekonomi Raharja Tbk	08-Jan-08	6
24	BAPA	Bekasi Asri Pemula Tbk	14-Jan-08	6
25	TRIL	Triwira Insanlestari Tbk	28-Jan-08	9
26	ELSA	Elnusa Tbk	06-Feb-08	6
27	YPAS	Yanaprima Hastapersada Tbk	05-Mar-08	4
28	BTPN	Bank Tabungan Pensiunan Nasional Tbk	12-Mar-08	7
29	KOIN	Kokoh Inti Arebama Tbk	09-Apr-08	6
30	GZCO	Gozco Plantations Tbk	15-Mei-08	9
31	TPIA	Tri Polyta Indonesia Tbk	26-Mei-08	6
32	BSDE	Bumi Serpong Damai Tbk	06-Jun-08	2
33	INDY	Indika Energy Tbk	11-Jun-08	6

No	Code	Company Name	IPO Date	Sectors*
34	VRNA	Verena Multi Finance Tbk	25-Jun-08	6
35	PDES	Destinasi Tirta Nusantara Tbk	08-Jul-08	8
36	KBRI	Kertas Basuki Rachmat Indonesia Tbk	11-Jul-08	6
37	ADRO	Adaro Energy Tbk	16-Jul-08	2
38	HOME	Hotel Mandarine Regency Tbk	17-Jul-08	9
39	BYAN	Bayan Resources Tbk	12-Agust-08	2
40	TRAM	Trada Maritime Tbk	10-Sep-08	7
41	SIAP	Sekawan Intipratam Tbk	17-Okt-08	3
42	AMRT	Sumber Alfaria Trijaya Tbk	15-Jan-09	9
43	TRIO	Trikomsel Oke Tbk	14-Apr-09	9
44	BPFI	Batavia Prosperindo Tbk	01-Jun-09	8
45	INVS	Inovisi Infracom Tbk	03-Jul-09	7
46	GTBO	Garda Tujuh Buana Tbk	09-Jul-09	2
47	MKPI	Metropolitan Kentjana Tbk	10-Jul-09	6
48	RINA	Katarina Utama Tbk	14-Jul-09	7
49	BWPT	BW Plantation Tbk	27-Okt-09	1
50	DSSA	Dian Swastatika Sentosa Tbk	10-Des-09	9
51	BCIP	Bumi Citra Permai Tbk	11-Des-09	6
52	NIKL	Pelat Timah Nusantara Tbk	14-Des-09	3
53	BBTN	Bank Tabungan Negara Tbk	17-Des-09	8
54	GDST	Gunawan Dianjaya Steel Tbk	23-Des-09	3
55	EMTK	Elang Mahkota Teknologi Tbk [S]	12-Jan-10	9
56	PTPP	PP (Persero) Tbk	09-Feb-10	6
57	BIPI	Benakat Petroleum Energy Tbk	11-Feb-10	2
58	TOWR	Sarana Menara Nusantara Tbk	08-Mar-10	7
59	ROTI	Nippon Indosari Corpindo Tbk [S]	28-Jun-10	5
60	GOLD	Golden Retailindo Tbk [S]	07-Jul-10	9
61	SKYB	Skybee Tbk [S]	07-Jul-10	9
62	BJBR	Bank Pembangunan Daerah Jawa Barat & Banten Tbk	08-Jul-10	8
63	IPOL	Indopoly Swakarsa Industry Tbk	09-Jul-10	3
64	GREN	Evergreen Invesco Tbk [S]	09-Jul-10	9
65	BUVA	Bukit Uluwatu Villa Tbk [S]	12-Jul-10	9
66	BRAU	Berau Coal Energy Tbk	19-Agust-10	2
67	HRUM	Harum Energy Tbk [S]	06-Okt-10	2
68	ICBP	Indofood CBP Sukses Makmur Tbk [S]	07-Okt-10	5
69	TBIG	Tower Bersama Infrastructure Tbk	26-Okt-10	7
70	KRAS	Krakatau Steel (Persero) Tbk. [S]	10-Nop-10	3
71	APLN	Agung Podomoro Land tbk. [S]	11-Nop-10	6

No	Code	Company Name	IPO Date	Sectors*
72	BORN	Borneo Lumbung Energi & Metal Tbk. [S]	26-Nop-10	2
73	WINS	Wintermar Offshore Marine Tbk. [S]	29-Nop-10	7
74	MIDI	Midi Utama Indonesia Tbk.	30-Nop-10	9
75	BRMS	Bumi Resources Minerals Tbk. [S]	09-Des-10	9
76	BSIM	Bank Sinarmas tbk.	13-Des-10	8
77	MFMI	Multifiling Mitra Indonesia Tbk. [S]	29-Des-10	9

Appendix 2

Research samples of Firms making IPO in period 2007-2010

No	Code	Company Name	IPO Date	Sectors*	Offer Price
1	BISI	Bisi International Tbk	28-Mei-07	7	340
2	WEHA	Panorama Transportasi Tbk	31-Mei-07	3	505
3	BKDP	Bukit Darmo Property Tbk	15-Jun-07	7	204
4	SGRO	Sampoerna Agro Tbk	18-Jun-07	8	2525
5	MNCN	Media Nusantara Citra Tbk	22-Jun-07	8	940
6	GPRA	Perdana Gapuraprima Tbk	10-Okt-07	7	258
7	WIKA	Wijaya Karya (Persero) Tbk	29-Okt-07	8	560
8	ACES	Ace Hardware Indonesia Tbk	06-Nop-07	1	98
9	CTRP	Ciputra Property Tbk	07-Nop-07	7	610
10	PTSN	Sat Nusapersada Tbk	08-Nop-07	6	640
11	JSMR	Jasa Marga Tbk	12-Nop-07	1	2050
12	JKON	Jaya Konstruksi Manggala Pratama Tbk	04-Des-07	7	980
13	ASRI	Alam Sutera Realty Tbk	18-Des-07	2	178
14	COWL	CowellDevelopment Tbk	19-Des-07	8	221
15	BAPA	Bekasi Asri Pemula Tbk	14-Jan-08	6	255
16	ELSA	Elnusa Tbk	06-Feb-08	6	515
17	YPAS	Yanaprima Hastapersada Tbk	05-Mar-08	4	640
18	KOIN	Kokoh Inti Arebama Tbk	09-Apr-08	6	226
19	GZCO	Gozco Plantations Tbk	15-Mei-08	9	272
20	BSDE	Bumi Serpong Damai Tbk	06-Jun-08	2	560
21	PDES	Destinasi Tirta Nusantara Tbk	08-Jul-08	8	340
22	KBRI	Kertas Basuki Rachmat Indonesia Tbk	11-Jul-08	6	710
23	ADRO	Adaro Energy Tbk	16-Jul-08	2	1730
24	HOME	Hotel Mandarine Regency Tbk	17-Jul-08	9	183
25	TRAM	Trada Maritime Tbk	10-Sep-08	7	159
26	SIAP	Sekawan Intipratam Tbk	17-Okt-08	3	159
27	AMRT	Sumber Alfaria Trijaya Tbk	15-Jan-09	9	395
28	TRIO	Trikomsel Oke Tbk	14-Apr-09	9	230
29	BWPT	BW Plantation Tbk	27-Okt-09	1	570
30	PTPP	PP (Persero) Tbk	09-Feb-10	6	580
31	ROTI	Nippon Indosari Corpindo Tbk [S]	28-Jun-10	5	1490
32	TBIG	Tower Bersama Infrastructure Tbk	26-Okt-10	3	2400
33	APLN	Agung Podomoro Land tbk. [S]	11-Nop-10	6	410

*Notes: The lists of sectors in number are (1) Agriculture, (2) Mining, (3) Basic industry and Chemicals, (4) Miscellaneous Industry, (5) Consumer Goods Industry, (6) Property, Real Estate, and Building Construction, (7) Infrastructure, Utilities, and Transportation, (8) Finance, and (9) Trade, Services, and Investment.

Appendix 3
Data normality Test of Abnormal Return

Descriptives

			Statistic	Std. Error
AR1	Mean		,0633	,02186
	95% Confidence Interval for Mean	Lower Bound	,0187	
		Upper Bound	,1078	
	5% Trimmed Mean		,0564	
	Median		,0250	
	Variance		,016	
	Std. Deviation		,12557	
	Minimum		-,09	
	Maximum		,35	
	Range		,44	
	Interquartile Range		,08	
	Skewness		1,361	,409
	Kurtosis		,728	,798
AR2	Mean		,1118	,03732
	95% Confidence Interval for Mean	Lower Bound	,0358	
		Upper Bound	,1879	
	5% Trimmed Mean		,0972	
	Median		,0264	
	Variance		,046	
	Std. Deviation		,21441	
	Minimum		-,17	
	Maximum		,64	
	Range		,81	
	Interquartile Range		,14	
	Skewness		1,410	,409
	Kurtosis		,951	,798
AR3	Mean		,1083	,03804
	95% Confidence Interval for Mean	Lower Bound	,0308	
		Upper Bound	,1858	
	5% Trimmed Mean		,0950	
	Median		,0423	
	Variance		,048	
	Std. Deviation		,21854	

	Minimum		-,19	
	Maximum		,65	
	Range		,83	
	Interquartile Range		,20	
	Skewness		1,238	,409
	Kurtosis		,641	,798
AR4	Mean		,1357	,04535
	95% Confidence Interval for Mean	Lower Bound	,0433	
		Upper Bound	,2280	
	5% Trimmed Mean		,1167	
	Median		,0652	
	Variance		,068	
	Std. Deviation		,26050	
	Minimum		-,19	
	Maximum		,86	
	Range		1,05	
	Interquartile Range		,23	
	Skewness		1,392	,409
	Kurtosis		1,260	,798
AR5	Mean		,1222	,05761
	95% Confidence Interval for Mean	Lower Bound	,0049	
		Upper Bound	,2396	
	5% Trimmed Mean		,1218	
	Median		,0594	
	Variance		,110	
	Std. Deviation		,33092	
	Minimum		-,84	
	Maximum		,91	
	Range		1,75	
	Interquartile Range		,24	
	Skewness		,159	,409
	Kurtosis		2,325	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AR1	,275	33	,000	,789	33	,000
AR2	,246	33	,000	,796	33	,000
AR3	,233	33	,000	,848	33	,000
AR4	,212	33	,001	,841	33	,000
AR5	,152	33	,052	,912	33	,011

a. Lilliefors Significance Correction

Appendix 4

Wilcoxon One Sample Test Results of Abnormal Return

Wilcoxon Signed Rank Test: AR1; AR2; AR3; AR4; AR5

Test of median = 0,000000 versus median not = 0,000000

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              N
            for   Wilcoxon              Estimated
      N    Test  Statistic      P        Median
AR1   33    33      424,0    0,011      0,02862
AR2   33    33      432,0    0,007      0,05683
AR3   33    33      406,0    0,026      0,05748
AR4   33    33      420,0    0,013      0,07925
AR5   33    33      419,0    0,014      0,09299
```

Wilcoxon Signed Rank Test: AR1; AR2; AR3; AR4; AR5

Test of median = 0,000000 versus median < 0,000000

```
              N
            for   Wilcoxon              Estimated
      N    Test  Statistic      P        Median
AR1   33    33      424,0    0,995      0,02862
AR2   33    33      432,0    0,997      0,05683
AR3   33    33      406,0    0,988      0,05748
AR4   33    33      420,0    0,994      0,07925
AR5   33    33      419,0    0,993      0,09299
```

Wilcoxon Signed Rank Test: AR1; AR2; AR3; AR4; AR5

Test of median = 0,000000 versus median > 0,000000

```
              N
            for   Wilcoxon              Estimated
      N    Test  Statistic      P        Median
AR1   33    33      424,0    0,005      0,02862
AR2   33    33      432,0    0,003      0,05683
AR3   33    33      406,0    0,013      0,05748
AR4   33    33      420,0    0,007      0,07925
AR5   33    33      419,0    0,007      0,09299
```

Appendix 5
Data normality Test of Actual Return

Descriptives			Statistic	Std. Error
ActualRet1	Mean		,0594	,02253
	95% Confidence Interval for Mean	Lower Bound	,0135	
		Upper Bound	,1053	
	5% Trimmed Mean		,0526	
	Median		,0155	
	Variance		,017	
	Std. Deviation		,12944	
	Minimum		-,11	
	Maximum		,35	
	Range		,46	
	Interquartile Range		,08	
	Skewness		1,282	,409
	Kurtosis		,588	,798
ActualRet2	Mean		,1039	,03835
	95% Confidence Interval for Mean	Lower Bound	,0258	
		Upper Bound	,1820	
	5% Trimmed Mean		,0903	
	Median		,0134	
	Variance		,049	
	Std. Deviation		,22028	
	Minimum		-,20	
	Maximum		,62	
	Range		,81	
	Interquartile Range		,14	
	Skewness		1,469	,409
	Kurtosis		1,089	,798
ActualRet3	Mean		,0975	,03894
	95% Confidence Interval for Mean	Lower Bound	,0181	
		Upper Bound	,1768	
	5% Trimmed Mean		,0809	
	Median		,0000	
	Variance		,050	

	Std. Deviation		,22368	
	Minimum		-,21	
	Maximum		,68	
	Range		,90	
	Interquartile Range		,22	
	Skewness		1,353	,409
	Kurtosis		1,037	,798
ActualRet4	Mean		,1244	,04616
	95% Confidence Interval for Mean	Lower Bound	,0304	
		Upper Bound	,2185	
	5% Trimmed Mean		,1041	
	Median		,0141	
	Variance		,070	
	Std. Deviation		,26518	
	Minimum		-,20	
	Maximum		,88	
	Range		1,07	
	Interquartile Range		,22	
	Skewness		1,478	,409
	Kurtosis		1,359	,798
ActualRet5	Mean		,1267	,04971
	95% Confidence Interval for Mean	Lower Bound	,0255	
		Upper Bound	,2280	
	5% Trimmed Mean		,1073	
	Median		,0319	
	Variance		,082	
	Std. Deviation		,28554	
	Minimum		-,31	
	Maximum		,92	
	Range		1,24	
	Interquartile Range		,23	
	Skewness		1,340	,409
	Kurtosis		1,467	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ActualRet1	,263	33	,000	,808	33	,000
ActualRet2	,250	33	,000	,769	33	,000
ActualRet3	,229	33	,000	,831	33	,000
ActualRet4	,204	33	,001	,808	33	,000
ActualRet5	,203	33	,001	,857	33	,000

a. Lilliefors Significance Correction

Appendix 6
Wilcoxon One Sample Test Results of Actual Return

Wilcoxon Signed Rank Test: ActRet1; ActRet2; ActRet3; ActRet4; ActRet5

```
Test of median = 0,000000 versus median not = 0,000000

                  N
                for   Wilcoxon            Estimated
           N   Test  Statistic      P      Median
ActRet1   33    31      350,5   0,046     0,02515
ActRet2   33    33      388,0   0,056     0,04607
ActRet3   33    31      327,5   0,122     0,04464
ActRet4   33    33      382,0   0,071     0,06072
ActRet5   33    33      390,0   0,051     0,06800
```

Wilcoxon Signed Rank Test: ActRet1; ActRet2; ActRet3; ActRet4; ActRet5

```
Test of median = 0,000000 versus median < 0,000000

                  N
                for   Wilcoxon            Estimated
           N   Test  Statistic      P      Median
ActRet1   33    31      350,5   0,978     0,02515
ActRet2   33    33      388,0   0,973     0,04607
ActRet3   33    31      327,5   0,942     0,04464
ActRet4   33    33      382,0   0,966     0,06072
ActRet5   33    33      390,0   0,975     0,06800
```

Wilcoxon Signed Rank Test: ActRet1; ActRet2; ActRet3; ActRet4; ActRet5

```
Test of median = 0,000000 versus median > 0,000000

                  N
                for   Wilcoxon            Estimated
           N   Test  Statistic      P      Median
ActRet1   33    31      350,5   0,023     0,02515
ActRet2   33    33      388,0   0,028     0,04607
ActRet3   33    31      327,5   0,061     0,04464
ActRet4   33    33      382,0   0,036     0,06072
ActRet5   33    33      390,0   0,026     0,06800
```

Appendix 7
Data Normality Test of Operating Performance Ratios

    1. **Normality Test of ORA Ratio**

Descriptives

			Statistic	Std. Error
ORAmin2	Mean		,0798	,01522
	95% Confidence Interval for Mean	Lower Bound	,0488	
		Upper Bound	,1108	
	5% Trimmed Mean		,0758	
	Median		,0611	
	Variance		,008	
	Std. Deviation		,08744	
	Minimum		-,07	
	Maximum		,30	
	Range		,37	
	Interquartile Range		,13	
	Skewness		,742	,409
	Kurtosis		,020	,798
ORAmin1	Mean		,1049	,01455
	95% Confidence Interval for Mean	Lower Bound	,0753	
		Upper Bound	,1346	
	5% Trimmed Mean		,1010	
	Median		,0799	
	Variance		,007	
	Std. Deviation		,08357	
	Minimum		-,01	
	Maximum		,31	
	Range		,33	
	Interquartile Range		,11	
	Skewness		,735	,409
	Kurtosis		-,218	,798
ORA_0	Mean		,0871	,01130
	95% Confidence Interval for Mean	Lower Bound	,0641	
		Upper Bound	,1101	
	5% Trimmed Mean		,0840	

	Median		,0725	
	Variance		,004	
	Std. Deviation		,06490	
	Minimum		-,03	
	Maximum		,27	
	Range		,30	
	Interquartile Range		,08	
	Skewness		,826	,409
	Kurtosis		,853	,798
ORAplus1	Mean		,0953	,01481
	95% Confidence Interval for Mean	Lower Bound	,0651	
		Upper Bound	,1254	
	5% Trimmed Mean		,0896	
	Median		,0804	
	Variance		,007	
	Std. Deviation		,08507	
	Minimum		-,03	
	Maximum		,35	
	Range		,38	
	Interquartile Range		,10	
	Skewness		1,146	,409
	Kurtosis		1,447	,798
ORAplus2	Mean		,0838	,01040
	95% Confidence Interval for Mean	Lower Bound	,0626	
		Upper Bound	,1050	
	5% Trimmed Mean		,0842	
	Median		,0831	
	Variance		,004	
	Std. Deviation		,05976	
	Minimum		-,04	
	Maximum		,20	
	Range		,25	
	Interquartile Range		,09	
	Skewness		-,004	,409
	Kurtosis		-,311	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ORAmin2	,164	33	,025	,945	33	,094
ORAmin1	,151	33	,056	,938	33	,058
ORA_0	,159	33	,034	,954	33	,170
ORAplus1	,162	33	,028	,920	33	,018
ORAplus2	,089	33	,200[*]	,984	33	,899

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

2. **Normality Test of OCFTA Ratio**

Descriptives

			Statistic	Std. Error
OCFTAmin2	Mean		,0447	,02250
	95% Confidence Interval for Mean	Lower Bound	-,0012	
		Upper Bound	,0905	
	5% Trimmed Mean		,0452	
	Median		,0303	
	Variance		,017	
	Std. Deviation		,12925	
	Minimum		-,21	
	Maximum		,28	
	Range		,49	
	Interquartile Range		,17	
	Skewness		,118	,409
	Kurtosis		-,277	,798
OCFTAmin1	Mean		,0485	,02949
	95% Confidence Interval for Mean	Lower Bound	-,0116	
		Upper Bound	,1085	
	5% Trimmed Mean		,0421	
	Median		,0176	
	Variance		,029	
	Std. Deviation		,16939	

	Minimum		-,23	
	Maximum		,44	
	Range		,67	
	Interquartile Range		,17	
	Skewness		,910	,409
	Kurtosis		,574	,798
OCFTA_0	Mean		,0212	,01853
	95% Confidence Interval for Mean	Lower Bound	-,0165	
		Upper Bound	,0590	
	5% Trimmed Mean		,0243	
	Median		,0201	
	Variance		,011	
	Std. Deviation		,10642	
	Minimum		-,27	
	Maximum		,25	
	Range		,53	
	Interquartile Range		,12	
	Skewness		-,372	,409
	Kurtosis		1,437	,798
OCFTAplus1	Mean		,0572	,01592
	95% Confidence Interval for Mean	Lower Bound	,0248	
		Upper Bound	,0897	
	5% Trimmed Mean		,0553	
	Median		,0521	
	Variance		,008	
	Std. Deviation		,09148	
	Minimum		-,12	
	Maximum		,29	
	Range		,42	
	Interquartile Range		,12	
	Skewness		,312	,409
	Kurtosis		,198	,798
OCFTAplus2	Mean		,0754	,01079
	95% Confidence Interval for Mean	Lower Bound	,0534	
		Upper Bound	,0974	
	5% Trimmed Mean		,0753	
	Median		,0649	

		Statistic	
	Variance	,004	
	Std. Deviation	,06197	
	Minimum	-,06	
	Maximum	,20	
	Range	,26	
	Interquartile Range	,09	
	Skewness	,266	,409
	Kurtosis	-,206	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
OCFTAmin2	,120	33	,200[*]	,967	33	,395
OCFTAmin1	,160	33	,031	,916	33	,014
OCFTA_0	,128	33	,183	,960	33	,267
OCFTAplus1	,104	33	,200[*]	,980	33	,786
OCFTAplus2	,133	33	,147	,970	33	,476

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

3. **Normality Test of Sales Growth Ratio**

Descriptives

			Statistic	Std. Error
SGmin2	Mean		,5629	,19734
	95% Confidence Interval for Mean	Lower Bound	,1609	
		Upper Bound	,9648	
	5% Trimmed Mean		,3862	
	Median		,3587	
	Variance		1,285	
	Std. Deviation		1,13365	
	Minimum		-,28	
	Maximum		6,56	
	Range		6,84	
	Interquartile Range		,46	
	Skewness		4,895	,409
	Kurtosis		26,230	,798

SGmin1	Mean		,3750	,07589
	95% Confidence Interval for Mean	Lower Bound	,2204	
		Upper Bound	,5296	
	5% Trimmed Mean		,3183	
	Median		,3043	
	Variance		,190	
	Std. Deviation		,43594	
	Minimum		-,29	
	Maximum		2,26	
	Range		2,55	
	Interquartile Range		,31	
	Skewness		3,012	,409
	Kurtosis		11,610	,798
SG_0	Mean		,5118	,16494
	95% Confidence Interval for Mean	Lower Bound	,1758	
		Upper Bound	,8478	
	5% Trimmed Mean		,3676	
	Median		,3446	
	Variance		,898	
	Std. Deviation		,94751	
	Minimum		-,20	
	Maximum		5,35	
	Range		5,55	
	Interquartile Range		,44	
	Skewness		4,416	,409
	Kurtosis		22,418	,798
SGplus1	Mean		,5351	,28324
	95% Confidence Interval for Mean	Lower Bound	-,0419	
		Upper Bound	1,1120	
	5% Trimmed Mean		,2708	
	Median		,3286	
	Variance		2,647	
	Std. Deviation		1,62710	
	Minimum		-,32	
	Maximum		9,46	
	Range		9,79	
	Interquartile Range		,40	

			Statistic	Std. Error
	Skewness		5,477	,409
	Kurtosis		30,901	,798
SGplus2	Mean		,0718	,06301
	95% Confidence Interval for Mean	Lower Bound	-,0566	
		Upper Bound	,2001	
	5% Trimmed Mean		,0793	
	Median		,1437	
	Variance		,131	
	Std. Deviation		,36197	
	Minimum		-,89	
	Maximum		,95	
	Range		1,84	
	Interquartile Range		,31	
	Skewness		-,572	,409
	Kurtosis		2,326	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
SGmin2	,355	33	,000	,435	33	,000
SGmin1	,273	33	,000	,674	33	,000
SG_0	,288	33	,000	,514	33	,000
SGplus1	,410	33	,000	,310	33	,000
SGplus2	,177	33	,010	,905	33	,007

a. Lilliefors Significance Correction

4. **Normality Test of TATO Ratio**

Descriptives

			Statistic	Std. Error
TATOmin2	Mean		1,0654	,21140
	95% Confidence Interval for Mean	Lower Bound	,6348	
		Upper Bound	1,4960	
	5% Trimmed Mean		,9393	
	Median		,6005	
	Variance		1,475	
	Std. Deviation		1,21441	

	Minimum		,01	
	Maximum		4,75	
	Range		4,74	
	Interquartile Range		1,09	
	Skewness		1,704	,409
	Kurtosis		2,228	,798
TATOmin1	Mean		1,1545	,26748
	95% Confidence Interval for Mean	Lower Bound	,6096	
		Upper Bound	1,6993	
	5% Trimmed Mean		,9218	
	Median		,5890	
	Variance		2,361	
	Std. Deviation		1,53657	
	Minimum		,01	
	Maximum		7,80	
	Range		7,79	
	Interquartile Range		1,29	
	Skewness		2,980	,409
	Kurtosis		10,826	,798
TATO_0	Mean		,8137	,14320
	95% Confidence Interval for Mean	Lower Bound	,5220	
		Upper Bound	1,1054	
	5% Trimmed Mean		,7159	
	Median		,5365	
	Variance		,677	
	Std. Deviation		,82265	
	Minimum		,03	
	Maximum		3,69	
	Range		3,66	
	Interquartile Range		,88	
	Skewness		1,878	,409
	Kurtosis		4,081	,798
TATOplus1	Mean		,8310	,13231
	95% Confidence Interval for Mean	Lower Bound	,5615	
		Upper Bound	1,1005	
	5% Trimmed Mean		,7567	
	Median		,5890	

	Variance		,578	
	Std. Deviation		,76004	
	Minimum		,09	
	Maximum		3,30	
	Range		3,21	
	Interquartile Range		,93	
	Skewness		1,446	,409
	Kurtosis		2,263	,798
TATOplus2	Mean		,8088	,13868
	95% Confidence Interval for Mean	Lower Bound	,5263	
		Upper Bound	1,0913	
	5% Trimmed Mean		,7259	
	Median		,5539	
	Variance		,635	
	Std. Deviation		,79666	
	Minimum		,02	
	Maximum		3,63	
	Range		3,61	
	Interquartile Range		1,01	
	Skewness		1,646	,409
	Kurtosis		3,584	,798

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TATOmin2	,205	33	,001	,767	33	,000
TATOmin1	,228	33	,000	,663	33	,000
TATO_0	,172	33	,014	,806	33	,000
TATOplus1	,165	33	,023	,848	33	,000
TATOplus2	,175	33	,012	,839	33	,000

a. Lilliefors Significance Correction

Appendix 8
Paired Sample T-test Results of Operating Performance Ratios

T-test ORA (from -2 to -1)

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	ORAmin2 - ORAmin1	-,02513	,04364	,00760	-,04061	-,00966	-3,309	32	,002

T-test ORA (from -1 to 0)

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	ORAmin1 - ORA_0	,01781	,04057	,00706	,00342	,03219	2,521	32	,017

T-test ORA (from -1 to 1)

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	ORAmin1 - ORAplus1	,00966	,04772	,00831	-,00727	,02658	1,162	32	,254

T-test ORA (from -1 to 2)

Paired Samples Test

		Paired Differences							Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	ORAmin1 - ORAplus2	,02112	,04902	,00853	,00374	,03850	2,476	32	,019

T-test OCFTA (from -2 to -1)

Paired Samples Test

		Paired Differences							Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	OCFTAmin2 - OCFTAmin1	-,00380	,14346	,02497	-,05467	,04707	-,152	32	,880

T-test OCFTA (from -1 to 0)

Paired Samples Test

		Paired Differences							Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	OCFTAmin1 - OCFTA_0	,02724	,13042	,02270	-,01901	,07348	1,200	32	,239

T-test OCFTA (from -1 to 1)

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper	t	df	
Pair 1	OCFTAmin1 - OCFTAplus1	-,00877	,13664	,02379	-,05722	,03968	-,369	32	,715

T-test OCFTA (from -1 to 2)

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper	t	df	
Pair 1	OCFTAmin1 - OCFTAplus2	-,02692	,16992	,02958	-,08717	,03333	-,910	32	,370

T-test Sales Growth (from -2 to -1)

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper	t	df	
Pair 1	SGmin2 - SGmin1	,18786	1,19828	,20859	-,23703	,61275	,901	32	,375

T-test Sales Growth (from -1 to 0)

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper	t	df	
Pair 1	SGmin1 - SG_0	-,13677	,99372	,17298	-,48913	,21559	-,791	32	,435

T-test Sales Growth (from -1 to 1)

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper	t	df	
Pair 1	SGmin1 - SGplus1	-,16006	1,71143	,29792	-,76691	,44678	-,537	32	,595

T-test Sales Growth (from -1 to 2)

Paired Samples Test

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper	t	df	
Pair 1	SGmin1 - SGplus2	,30323	,53315	,09281	,11419	,49228	3,267	32	,003

T-test TATO (from -2 to -1)

Paired Samples Test

		Paired Differences							
			Std. Deviatio n	Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean			Lower	Upper	t	df	
Pair 1	TATOmin2 - TATOmin1	-,08912	,76943	,13394	-,36195	,18371	-,665	32	,511

T-test TATO (from -1 to 0)

Paired Samples Test

		Paired Differences							
			Std. Deviatio n	Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean			Lower	Upper	t	df	
Pair 1	TATOmin1 - TATO_0	,34080	,80011	,13928	,05709	,62451	2,447	32	,020

T-test TATO (from -1 to 1)

Paired Samples Test

		Paired Differences							
			Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean			Lower	Upper	t	df	
Pair 1	TATOmin1 - TATOplus1	,32348	,87789	,15282	,01219	,63476	2,117	32	,042

T-test TATO (from -1 to 2)

Paired Samples Test

		Paired Differences							Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	
Pair 1	TATOmin1 - TATOplus2	,34566	,86992	,15143	,03720	,65412	2,283	32	,029

Appendix 9
Wilcoxon Paired Samples Results of Operating Performance Ratios

Wilcoxon Signed Ranks Test (ORA from -2 to -1)

Ranks

		N	Mean Rank	Sum of Ranks
ORAmin1 - ORAmin2	Negative Ranks	8[a]	13,88	111,00
	Positive Ranks	25[b]	18,00	450,00
	Ties	0[c]		
	Total	33		

a. ORAmin1 < ORAmin2

b. ORAmin1 > ORAmin2

c. ORAmin1 = ORAmin2

Test Statistics[b]

	ORAmin1 - ORAmin2
Z	-3,029[a]
Asymp. Sig. (2-tailed)	,002

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (ORA from -1 to 0)

Ranks

		N	Mean Rank	Sum of Ranks
ORA_0 - ORAmin1	Negative Ranks	22[a]	18,00	396,00
	Positive Ranks	11[b]	15,00	165,00
	Ties	0[c]		
	Total	33		

a. ORA_0 < ORAmin1

b. ORA_0 > ORAmin1

c. ORA_0 = ORAmin1

Test Statistics[b]

	ORA_0 - ORAmin1
Z	-2,064[a]
Asymp. Sig. (2-tailed)	,039

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (ORA from -1 to 1)

Ranks

		N	Mean Rank	Sum of Ranks
ORAplus1 - ORAmin1	Negative Ranks	18[a]	18,83	339,00
	Positive Ranks	15[b]	14,80	222,00
	Ties	0[c]		
	Total	33		

a. ORAplus1 < ORAmin1

b. ORAplus1 > ORAmin1

c. ORAplus1 = ORAmin1

Test Statistics[b]

	ORAplus1 - ORAmin1
Z	-1,045[a]
Asymp. Sig. (2-tailed)	,296

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (ORA from -1 to 2)

Ranks

		N	Mean Rank	Sum of Ranks
ORAplus2 - ORAmin1	Negative Ranks	20[a]	19,90	398,00
	Positive Ranks	13[b]	12,54	163,00
	Ties	0[c]		
	Total	33		

a. ORAplus2 < ORAmin1

b. ORAplus2 > ORAmin1

c. ORAplus2 = ORAmin1

Test Statistics[b]

	ORAplus2 - ORAmin1
Z	-2,099[a]
Asymp. Sig. (2-tailed)	,036

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (OCFTA from -2 to -1)

Ranks

		N	Mean Rank	Sum of Ranks
OCFTAmin1 - OCFTAmin2	Negative Ranks	18[a]	15,61	281,00
	Positive Ranks	15[b]	18,67	280,00
	Ties	0[c]		
	Total	33		

a. OCFTAmin1 < OCFTAmin2

b. OCFTAmin1 > OCFTAmin2

c. OCFTAmin1 = OCFTAmin2

Wilcoxon Signed Ranks Test (OCFTA from -1 to 0)

Ranks

		N	Mean Rank	Sum of Ranks
OCFTA_0 - OCFTAmin1	Negative Ranks	18[a]	18,67	336,00
	Positive Ranks	15[b]	15,00	225,00
	Ties	0[c]		
	Total	33		

a. OCFTA_0 < OCFTAmin1

b. OCFTA_0 > OCFTAmin1

c. OCFTA_0 = OCFTAmin1

Test Statistics[b]

	OCFTA_0 - OCFTAmin1
Z	-,992[a]
Asymp. Sig. (2-tailed)	,321

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (OCFTA from -1 to 1)

Ranks

		N	Mean Rank	Sum of Ranks
OCFTAplus1 - OCFTAmin1	Negative Ranks	14[a]	16,71	234,00
	Positive Ranks	19[b]	17,21	327,00
	Ties	0[c]		
	Total	33		

a. OCFTAplus1 < OCFTAmin1

b. OCFTAplus1 > OCFTAmin1

c. OCFTAplus1 = OCFTAmin1

Test Statistics[b]

	OCFTAplus1 - OCFTAmin1
Z	-,831[a]
Asymp. Sig. (2-tailed)	,406

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (OCFTA from -1 to 2)

Ranks

		N	Mean Rank	Sum of Ranks
OCFTAplus2 - OCFTAmin1	Negative Ranks	14[a]	15,71	220,00
	Positive Ranks	19[b]	17,95	341,00
	Ties	0[c]		
	Total	33		

a. OCFTAplus2 < OCFTAmin1

b. OCFTAplus2 > OCFTAmin1

c. OCFTAplus2 = OCFTAmin1

Test Statistics[b]

	OCFTAplus2 - OCFTAmin1
Z	-1,081[a]
Asymp. Sig. (2-tailed)	,280

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (Sales Growth from -2 to -1)

Ranks

		N	Mean Rank	Sum of Ranks
SGmin1 - SGmin2	Negative Ranks	20[a]	16,30	326,00
	Positive Ranks	13[b]	18,08	235,00
	Ties	0[c]		
	Total	33		

a. SGmin1 < SGmin2

b. SGmin1 > SGmin2

c. SGmin1 = SGmin2

Test Statistics[b]

	SGmin1 - SGmin2
Z	-,813[a]
Asymp. Sig. (2-tailed)	,416

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (Sales Growth from -1 to 0)

Ranks

		N	Mean Rank	Sum of Ranks
SG_0 - SGmin1	Negative Ranks	18[a]	15,39	277,00
	Positive Ranks	15[b]	18,93	284,00
	Ties	0[c]		
	Total	33		

a. SG_0 < SGmin1

b. SG_0 > SGmin1

c. SG_0 = SGmin1

Test Statistics[b]

	SG_0 - SGmin1
Z	-,063[a]
Asymp. Sig. (2-tailed)	,950

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (Sales Growth from -1 to 1)

Ranks

		N	Mean Rank	Sum of Ranks
SGplus1 - SGmin1	Negative Ranks	17[a]	19,00	323,00
	Positive Ranks	16[b]	14,88	238,00
	Ties	0[c]		
	Total	33		

a. SGplus1 < SGmin1

b. SGplus1 > SGmin1

c. SGplus1 = SGmin1

Test Statistics[b]

	SGplus1 - SGmin1
Z	-,759[a]
Asymp. Sig. (2-tailed)	,448

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (Sales Growth from -1 to 2)

Ranks

		N	Mean Rank	Sum of Ranks
SGplus2 - SGmin1	Negative Ranks	24[a]	19,25	462,00
	Positive Ranks	9[b]	11,00	99,00
	Ties	0[c]		
	Total	33		

a. SGplus2 < SGmin1

b. SGplus2 > SGmin1

c. SGplus2 = SGmin1

Test Statistics[b]

	SGplus2 - SGmin1
Z	-3,243[a]
Asymp. Sig. (2-tailed)	,001

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (TATO from -2 to -1)

Ranks

		N	Mean Rank	Sum of Ranks
TATOmin1 - TATOmin2	Negative Ranks	15[a]	19,00	285,00
	Positive Ranks	18[b]	15,33	276,00
	Ties	0[c]		
	Total	33		

a. TATOmin1 < TATOmin2

b. TATOmin1 > TATOmin2

c. TATOmin1 = TATOmin2

Test Statistics[b]

	TATOmin1 - TATOmin2
Z	-,080[a]
Asymp. Sig. (2-tailed)	,936

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (TATO from -1 to 0)

Ranks

		N	Mean Rank	Sum of Ranks
TATO_0 - TATOmin1	Negative Ranks	26[a]	18,50	481,00
	Positive Ranks	7[b]	11,43	80,00
	Ties	0[c]		
	Total	33		

a. TATO_0 < TATOmin1

b. TATO_0 > TATOmin1

c. TATO_0 = TATOmin1

Test Statistics[b]

	TATO_0 - TATOmin1
Z	-3,582[a]
Asymp. Sig. (2-tailed)	,000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (TATO from -1 to 1)

Ranks

		N	Mean Rank	Sum of Ranks
TATOplus1 - TATOmin1	Negative Ranks	24[a]	18,17	436,00
	Positive Ranks	9[b]	13,89	125,00
	Ties	0[c]		
	Total	33		

a. TATOplus1 < TATOmin1

b. TATOplus1 > TATOmin1

c. TATOplus1 = TATOmin1

Test Statisticsb

	TATOplus1 - TATOmin1
Z	-2,778[a]
Asymp. Sig. (2-tailed)	,005

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test (TATO from -1 to 2)

Ranks

		N	Mean Rank	Sum of Ranks
TATOplus2 - TATOmin1	Negative Ranks	22[a]	20,32	447,00
	Positive Ranks	11[b]	10,36	114,00
	Ties	0[c]		
	Total	33		

a. TATOplus2 < TATOmin1

b. TATOplus2 > TATOmin1

c. TATOplus2 = TATOmin1

Test Statistics[b]

	TATOplus2 - TATOmin1
Z	-2,975[a]
Asymp. Sig. (2-tailed)	,003

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test