

**THE RELATIONSHIP BETWEEN INCOME SMOOTHING
AND RISK ADJUSTED RETURN ON THE CASE OF
MANUFACTURING COMPANIES LISTED IN THE
JAKARTA STOCK EXCHANGE**

A THESIS

**Presented as a Partial Fulfillment of the Requirements
to obtain the Bachelor Degree in Accounting Department**



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YOGYAKARTA
2003**

OFFICIAL REPORT THESIS EXAMINATION

THESIS TITLE:

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A BACHELOR DEGREE THESIS

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On JUNE 27, 2003

AND DECLARED ACCEPTABLE

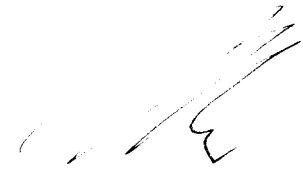
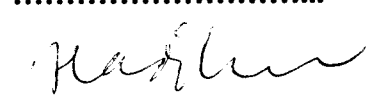
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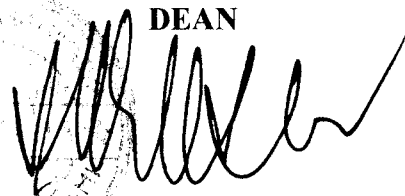
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ACKNOWLEDGED BY:

DEAN



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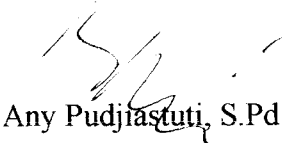
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Mencintaimu adalah bahagia dan sedih
Bahagia karena mempunyai kamu dikalibuku,
Dan sedih karena kita sering berpisah.
Ketegangan menjadi pupuk cinta kita
Tetapi bukankah kehidupan bahagia dan sedih?
Bahagia karena nafas mengalir dan jantung berdetak.
Sedih karena pikiran diliputi bayang- bayang.
Adapun harapan adalah penghayatan akan ketegangan.

(Pamflet Cinta, Rendra)

Dedicated to My Beloved Bapak, Ibu, Shinta and Mas Sigit

ACKNOWLEDGMENT

Thank GOD! I did it finally!! It has been a hardest and a stressfull year to finish this thesis. Alhamdulillah I can get through all of this, although I fell down many times but here I stand, and still... Praise to Allah who has already given me ability, health, bless and many things that has made me like this, ' cause this will be impossible without Your will and mercy. I will use this page as an opportunity to express my sincere appreciation and gratitude to everyone who always help, support, care, love and also give contribution in completing this thesis writing.

I would like to extend my gratitude to my thesis advisor Dr. Hadri Kusuma, MBA for his constructive suggestions and comments. Thank you for a great discussions that we have during my consultation with you, although sometimes you were mad at me but, you taught me many things about the real world that I will face in the future.

I would like to extend my gratitude to Dr. Asma' i Ishak, M. Bus as the director of the International Program and all of the lecturers in the International Program.

I also would like to thank to the IP management' s staffs. Mas Erwan (happy wedding anniversary and don't be to vicious ok!). Mbak Devi (welcome to IP program, it was so nice to know you in my last minutes into graduation : p). Then Mbak Any who was very helpful in checking my grammar in my thesis. I' ll miss

you all, guys!! Thanks for being kind and help me, so I can graduate from this program.

I would like to thank to Jakarta Stock Exchange staffs, because they were very helpful to me. Mbak Erni who has downloaded my data until ten diskettes, hehehe. Then mbak Tatik for always being patient in answering all of my questions (don't worry mbak, I will invite both of you when I am getting married ok!)

Hi Guys!!!! This is special for you, all of my cute friends. Hope this page will be enough to mention all of you one by one.

First, all my friends in " Kost IA" at Pawiro Kuwat number 38 ConCat. Mba Endang' Mamy Poko' (hurry up sis, join us soon and let' s hunting together ok!), Jeng Ratih ' Hajjah of IA' (I will miss your spiritual support), Nelly cantik (always be a beautiful girl yaa, and good bye my friend, it' s not the end), Hellul (bravo laughing with your quartet team <dian, damas, and silma> hahaha), Inna sari husada milk industry (always be productive yaa :)), Yuli Simon (hope you can find your Mr. Right soon), Winda (you' re so cute with you hair), Gina ' the big nose ' (I will miss your Balikpapan' s dialect ai ai), vibul ' the mamot baby ' (I will be the first patient when you become a dentist, and the first thing that you do is cleaning my coral tartar on my teeth, hehe), Erin ' Princess Giant' Angga ' tasya' , melki (welcome to crazy house), mba Indang, novi, indri, ika, sisca (thanks for the keyboard), desta, setin,and rieke. Thanks for making me laugh during my hard times (comprehensive and finishing this thesis), and your understanding when I was a little mad and not in a good mood. I

love you all, and it's not the end right? You all really have brought a beautiful colours in my life.

Second, my friends (kos IA senior) who have already graduate. Itto, Anny, Fitri ' J-Lo ' (can wait to see you all soon and fight together, girls!). Thanks for supporting me from far away. For Budhe Dyah' Puca" (hehe I make it Ca, so shall we stay in the same boarding house again?), Mba Prita Gita Wahyuning...Jakarta or Mrs. Heri (madam, I am coming.....) Indri 'dmx' (hurry up ndy and join us soon). It was so nice to know you all, although we've been together in a short time, but I feel like we already know each other for many years and I miss a friend like you, to discuss many things. Keep fighting for the best future yach!!!

Third, my close friends who always be real friend to me, and always get together in happiness, sadness, joy, fun, and many things that we've been through as best friends. Sometimes we were near and far, sometimes we laugh and cry, sometimes we were harmonious and be enemies, but we are still best friends. Fitria ' Uphiel' (nduk, I wish you all the best things in life, be stiff ok), Yeyen and Mas Intong (I'm waiting for your invitation), Ilma (you were so kind ' cause in my first year as a university student you always picked me up to go to campus then finally we ever get injured in an accident in front of ALFA that made me have a mustache like Asmuni, hahaha. I'm sure you won't forget it right?), Emma (everlasting friends we are), Rindi and Ade ndut (do we still ' trio kwek- kwek? I hope), thanks to you all from my deepest heart for always hear me, accompany me, care of me, give advice to me, understand me, support me and be a friend of me.

Fourth, my classmates in Accounting department (all grades), thanks for the quiet nice class and the discussions that we ever had, hope all of us will get the best next.

Fifth, for all of everyone who I know as friend and know me to. Sorry I can't mention all of you, because it will take more papers and it is impossible. Thanks for everything 'cause all of you have contribution in created my character to be like now, whether it was bad or good but it was really useful to me.

Special thanks I would give to Bapak Andreas Sabani and Ibu in Jakarta. My sincere appreciation for always support and care of me, then my beautiful Adik Shanty who always call and said 'Mba Ayik, when will you be here?' it was a great support to me.

Special thanks I would also give to my family in Muntilan and Reban. Both of my Grandmothers, and both of my Grandfathers, all Pakde and Bude, Oom and Bulek, my cousins, my nephew, and all my big family there. Thank you for always love, support and care, and I am sorry because I am late. We're such a great family and we'll keep it always and I dedicate my graduation for you all.

My deepest appreciation, may the almighty Allah bless my Father Sahuri Noor and my mother Esti Nurwati (Amien..), for their endless love and support to me and my education since childhood, and for always fulfilling my needs with no limit. Bapak, Ibu, nduk sari dedicate this thesis for you and this is the result of my study that you're already been waiting for a couple of times. Sorry for waiting too long, but I want to be the best for you. You are the biggest support and prayers to me, and thank you for it all. Special thanks go to my cute sister, Dik Shinta. Hi girl, this is for

you to. Sorry for not being a good sister for you, but I will try to make you proud of me. You' re a big girl now, fight to find your self ok? Thanks for everything, for being with me and sharing this life with groovy love for along these times, and you all have thought me special joys of living and have made sure that I experienced all the struggles, anxieties, and failure that separate theory from practice.

Finally, this is for a very special person in my heart, Mas Sigit Arimurti, ST. Honey, sorry for put your name in the last page, ' cause you are the last, the last man that will stay here in my heart and no more chance to others, you know? What will I say? Thanks for all loves, cares, supports, prays, patients, and everything that you' re given to me. You ' re a wonderful gift to me, and you really taught me many things that already made me be a better person. Sorry honey, I already make you waiting so long, and now I dedicate this for you. Inshaallah our hope will be realized soon. May Allah bless both of us. Amien. And you know what? I do love you too, Honey.....

Yogyakarta, June 27, 2003

Noor Aida Kumalasari

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ABSTRACT

Kumalasari, Noor Aida (2003). **The Relationship between Income Smoothing and Risk Adjusted Return on the Case of Manufacturing Companies Listed in the Jakarta Stock Exchange.** Yogyakarta, Accounting Department, Economic Faculty. Universitas Islam Indonesia.

Income Smoothing is a common issue that has been researched for many years. Income Smoothing become an attractive issue because it is practiced in order to create a smooth income stream and press the income' s fluctuation so it will be seen as stable and normal for a company. The objective of this research is to analyze the relationship of the income smoothing and risk adjusted return with the empirical evidence that support it and identify the effect of income smoothing to the market' s return level.

This research examined fifty- eight manufacturing companies listed in Jakarta Stock Exchange during 1993- 2000, then classify them into smoother and nonsmoothen. This research was used Index Eckel (1981) to classify whether a company is smoother or not. The application of the model :

$$\text{Income Smoothing index} = (CV_{\Delta I} / CV_{\Delta S})$$

Income Smoothing Index is indicated by an index of less than 1 (< 1 is called smoother)

Oneway ANOVA was used to test the hypothesis about the comparison whether smoother companies has greater risk adjusted return than nonsmoothen and also test the hypothesis about the difference of cumulative average abnormal return between smoother and nonsmoothen companies. Furthermore, a multivariate regression analysis was used to examine the hypothesis about the relationship of income smoothing and risk adjusted return.

The result indicates that there were no significant difference of cumulative average abnormal return between smoother and nonsmoothen, and no evidence to prove that smoother has greater risk adjusted return than nonsmoothen. The result also indicates that there was no significant relationship between income smoothing and risk adjusted return.

Keywords : Income Smoothing, Risk adjusted Return.

ABSTRAK

Kumalasari, Noor Aida (2003). **Hubungan Antara Income Smoothing dan Risk Adjusted Return pada kasus Perusahaan- perusahaan Manufaktur yang Terdaftar di Bursa Efek Jakarta**, Jurusan Akuntansi, Fakultas Ekonomi. Universitas Islam Indonesia.

Income smoothing atau perataan laba adalah isu biasa yang sudah diteliti selama bertahun-tahun. Income smoothing menjadi isu yang menarik karena hal ini dipraktekkan dengan tujuan untuk menciptakan aliran laba yang rata dan menekan fluktuasi laba, sehingga akan terlihat stabil dan normal bagi perusahaan tersebut. Tujuan dari penelitian ini adalah untuk menganalisa hubungan antara income smoothing dengan risk adjusted return dengan bukti empiris yang mendukungnya dan mengidentifikasi pengaruh income smoothing terhadap tingkat return pasar.

Penelitian ini menguji 58 perusahaan manufaktur yang terdaftar di Bursa Efek Jakarta selama periode 1993- 2000, kemudian mengelompokkan mereka pada perusahaan perata dan non perata. Penelitian ini menggunakan Index Eckel (1981) untuk mengelompokkan apakah suatu perusahaan sebuah perata laba atau bukan. Aplikasi dari model ini :

$$\text{Income Smoothing index} = (CV_{\Delta I} / CV_{\Delta S})$$

Indeks Income Smoothing ditandai dengan indeks kurang dari 1 (< 1 disebut perata laba).

Uji ANOVA satu arah digunakan untuk menguji hipotesis tentang perbandingan apakah perusahaan- perusahaan perata laba memiliki risk adjusted return yang lebih besar daripada perusahaan- perusahaan nonperata. Uji ini juga digunakan untuk menguji hipotesis tentang perbedaan rata- rata abnormal return kumulatif antara perusahaan perata laba dan non perata laba. Uji regresi multivariate juga digunakan untuk menguji tingkat hubungan antara income smoothing dengan risk adjusted return.

Hasil dari penelitian ini menunjukkan bahwa tidak terdapat perbedaan yang signifikan pada rata- rata abnormal return kumulatif antara perusahaan perata laba dan non perata laba, dan tidak ditemukan bukti bahwa perata laba memiliki risk adjusted return yang lebih besar daripada non perata laba. Hasil penelitian juga menunjukkan bahwa tidak ada hubungan yang signifikan antara income smoothing dengan risk adjusted return

Kata Kunci : Income smoothing atau peratan laba, risk adjusted return.

CHAPTER I

INTRODUCTION

I.1. STUDY BACKGROUND

The basic objective of a financial accounting is to give relevant information to the users as the source for making economic decision. That is why a financial statement has to be able to describe the company's financial position and its operation's results in a certain condition properly. Financial statement is the principal tool to show how financial information will be communicated with the external users of the company. The purposes of financial statement are; 1) giving useful information in investment and debt decision, 2) providing useful information to measure the prospective cash flow, and 3) giving information about company's sources, claim to those sources, and the change of those sources (Kieso and Weygandt, 1995).

In recent time, capital market is going rapidly in Indonesia. It is the reason why financial statement has more important role right now. For the investor, accounting information is the basic data in doing stock analysis and predict future earnings prospective. Earnings information is the component of company's financial statement which has purpose to measure the management's performance, help to estimate the ability of long term representative earnings, earning's prediction, and adjust the risk on the investment or fund's lend (SFAC No.1 Year 1992).

Earning has potential information that is very important for the internal and external party of a company.

Manipulation of reported income has become one of the interesting research issue, especially the issue that is related to the income smoothing. For many years, studies of the smoothing of reported income by firms has suggested that one of its purpose is to increase the level of market return. Beidleman (1973) as cited by Belkaoui and Jones (1996:38) defined income smoothing is the intentional dampening of fluctuations about some level of earnings (profit) that is currently considered to be normal for a firm.”. Barnea, et al (1976) defined income smoothing as a reduction deliberately to the fluctuation on some levels of earnings, so it will be seen as a normal for the company.

Brayshaw and Eldin (1989) as cited by Ilmainir (1993) said that smoothing of reported income as a voluntary action of management which is motivated by behavior aspects of the company and its environment. The motivation to practice smoothing of reported income is usually used for the satisfaction of both parties, external (investors and creditors) and internal (accounting information users).

Michelson et al (1995) examined that the researches about smoothing of reported income which are done previously focused on the motivation of management in doing smoothing income, smoothing’ s target, smoothing’ s dimension, and smoothing’ s variable. Basically, the practice of income smoothing can give benefit impact for stock value.

Hepworth (1953: 33) as cited by Dwiatmini and Nurkholis (2001) stated that owners will feel more confident toward the company that report stable earnings.

Gordon (1964:262) as cited by Michelson et al(1995) suggested that management should smooth (within the accounting rules) reported income to increase stockholders satisfaction with the rate of growth and stability of its income. Rationale offered for income smoothing focuses on “ management’s desire to enhance the value of the firm’s stock.” Ronen and Sadan (1981, p. 76) as cited by Michelson et, al(2000).

Michelson, Jordan,Wagner and Wootton (2000) did the research on income smoothing, which based on their previous research in 1995. Their study are focused on the relationship between income smoothing and risk adjusted return for period January 1982 until December 1991.The results show that the companies that practice income smoothing have significantly higher cumulative average abnormal return than the companies that do not practice it. There is a significant relationship between type of industry and income smoothing.

In Indonesia, there are some researches about income smoothing and its relationship to some aspects. Ilmainir (1993) has found the evidence that income smoothing is supported by stock price, difference between actual earning and normal earning, and the effect of accounting policy changes on earning. Other researches about income smoothing, proposed by Zuhroh (1986) suggested that income smoothing is affected by leverage operation factor. Wimbari (1998) stated that factor which is influential to the income smoothing are company’s profitability and type of industry. Other researches, which are done by Samiawi and Sudibyoy (2000) focussed on the market performance of smoother or non-smoother firm. The result shows that some companies on the Jakarta Stock

Exchange practice income smoothing, and there is a significant difference of the average annualized return between smoother and non smoother firm. They also find that bigger companies tend to do income smoothing. Dwiatmini and Nurkholis (2001) find that the market reaction is not too strong for the smoother firm, and it also indicates that income smoothing is practiced in Indonesian stock market (in this case, JSX). The result of their research supports the previous study done by Utami and Suharmadi (1998), where the income information can influence the stock price and it is shown by the correlation between unexpected income and abnormal return.

This research is the replication of research by Michelson, Jordan, Wagner and Wootton (2000), because in Indonesia there was no research yet about the relationship between income smoothing and risk-adjusted return. It will re-examine the relationship between income smoothing and risk-adjusted returns. The samples of this study are manufacturing companies listed in Jakarta Stock Exchange which are grouped based on company's size, from January 1993 until December 2000.

1.2 PROBLEM STATEMENT

The previous study found that reason of income smoothing is to decrease the company risk, then it can increase the stock price (Beattie et al, 1994). If the stock price decrease, management will try to pressure the income 's fluctuation, to increase the stock price. The way is by increasing the income, then it can close to the normal income or normal return that is expected by stockholder. Usually

income smoothing is practiced by a company which has low stock price. The difference between actual return and normal return is regarded as factor that push the practice of income smoothing, because it relates to the income's fluctuation, risk, and stock price. Several studies have hypothesized that companies smooth to increase the market value of the firm or to reduce the actual or perceived risks of the firm. It is said also that smoother companies has less risk than non- smoother (Michelson et al, 1995). The study found the evidence that lower returns, lower risk, and larger firm size for smoothing firms. This indicates that income smoothing lowers the actual or perceived risks of the firms, which, in turn, would lead to lower returns to those investing in the lower risk firms. Additionally, the lower risk, more stable firms are generally identified as the larger firms with more consistent earnings. The findings, therefore seem to be appropriate when viewed in this context of primarily large firms with stable net income having lower overall risk and return. Therefore, this study focuses on the relation of income smoothing with risk- adjusted return for the manufacturing companies.

I.3. PROBLEM FORMULATION

Based on the explanation above this study attempts to obtain possible answer and giving empiric evidence for the following questions;

- a. How is the relationship of income smoothing with risk adjusted return?
- b. Does income smoothing influence the level of market return?

I.4. LIMITATION OF THE RESEARCH AREA

In order to make things clearer to the reader and to be able to impart useful information, the limitation of the study are indicated below;

1. The data that is used in this study is stock data and financial data of the manufacturing firms for the considered period of January 1993 - December 2000.
2. The firms that is used as sample is manufacturing firms listed in one market place, The Jakarta Stock Exchange.

The researcher chooses manufacturing companies as the sample because there was no research in the previous studies used by the researcher that just focused in one type of industry. Almost all of them were including all of the company's type. Beside that, the researcher wants to be more specific in researching the income smoothing practice by looking at one type, and manufacturing firms have special characteristic than other industry. Other reason, the sum of manufacturing companies are greater than other type of industry, moreover the year that is taken from 1993. We know that in the 1993, there was little number of companies listed in JSX, and most of them was manufacturing companies. There is also a statement from Sugiyanto, that during monetary crisis in Indonesia, the index at the JSX that has greater risk is manufacturing companies.

I.5. RESEARCH OBJECTIVE

The overall objective of the research is to investigate the information about the smoothing of reported income .The specific objective are:

- a. To analyze the relationship of income smoothing and risk adjusted return with the empirical evidence that support it.
- b. To identify the effect of income smoothing to the market return's level.

I.6. DEFINITION OF TERMS

In order to avoid confusion on the understanding of the terms used in this thesis, the following explanations will describe the terms used in the study.

Income Smoothing : A management policy in order to press the income variation and fluctuation (Beidleman, 1973)

Return : earning that comes from investment (Fachrudin, Sopian.2001;25)

Risk : a possibility of actual return, which is different from expected return (Fachrudin,Sopian,2001;329)

Risk adjusted Return : a measure of how much an investment return in relation to the amount of risk is took on (www.google.com)

Go public : usually is called general offer, means an activity that is done by an emitten to sale stock and bonds to public or citizens (Klinik Go public dan Investasi, JSX)

Jakarta Stock Exchange : is an institution in Indonesia which has principal services to operate security trade activity at secondary market (Husnan, 1994; 24)

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 Income Smoothing

Earning management is interpreted as a deliberate action in the rule of Generally Accepted Accounting Principles (GAAP), in order to achieve a desired level of a reported earning. Specific example of earning management is Income Smoothing. Income smoothing is a management policy in order to press the earning variation and fluctuation. Hepworth(1953) as cited by Samlawi (2000) stated that income smoothing can be viewed as the deliberate normalization of earning in order to reach a desired trend or level. Beidleman (1973) as cited by Belkaoui and Jones(1996:38) defined income smoothing as the intentional dampening of fluctuation about some level of income that is currently considered to be normal for a firm. Income smoothing is seen as a way to decrease income's variability in a certain period or one period that aimed to a desired level of a reported income. Beidleman (1973) as cited by Michelson et, al (2000) believed that the purpose of the management to practice income smoothing is to create a stable income's stream and decrease the covariance of market return. Beidleman considers the reason that motivate management to practice income smoothing is the attributes to smoothing the ability to counter the cyclical nature of reported income and likely reduce the correlation of firm's expected return with return on the market portfolio. Income smoothing is also

practiced to decrease the fluctuation of a reported income and increase the investor's ability to predict future cash flow, stated by Barnea et al (1976).

Previous study shows that income smoothing is a general phenomena. It is a rational action which is based on the positive accounting theory where agent (management) is a rational individual who have their own interest. Consistent with the assumption, the motivation of management to practice income smoothing is to maximize their interest, Ashari et all (1994). While the interest of manager is depend on the company's value, and they believe that market is based on the accounting number. The income's fluctuation and unpredictable of future income cause the market risk of a stock. Income smoothing is done to decrease the market risk of a company's stock, that finally will increase the company's market value. The market is said react to income smoothing if the stock price will change and return will change to when income smoothing is practiced.

Other argument about income smoothing stated by Mousen, Downs and Gordon (1964) as cited by Ilmainir (1993) suggested that managers may be motivated to smooth their own income (or security) with the assumption that stability in income and rate of growth will be preferred than higher average income stream with greater variability. Gordon said that the motivation of doing income smoothing is selecting among accounting principles to maximize their welfare or utility and create the satisfaction of shareholder with enhances company's performance that depend on the rate of growth and stability of the firm's income.

2.1.1 Method of Income Smoothing

Income smoothing literaturaly stated that choice of accounting method will be mainly used to decrease the income's fluctuation to maximize or minimize the reported income, (Moses, 1987). Simpson (1969) as cited by Assih (1998) examined the hypothesize that many of accounting method choices might be used by the firm to manipulate the income and the next it will cause the incapability of investors to compare the alternatives of investment well. Besides, the result shows that the income' manipulation seems to be significant and even mislead the investors.

Barnea et al (1976) focussed on revenue and cost that can be classified as ordinary or extra ordinary used for practice income smoothing. The result is strongly support that manager practiced income smoothing before extraordinary items through accounting manipulation over extraordinary items. Bortov(1993) in his study reported that specific factor of a firm can push the management to use an accounting method choice to smooth. Income smoothing can be done by using accounting appraisal method (called accrual based manipulation) or put into effect transaction which cause a reported income close to the expected number rather than maximize current expected cash flow (called real manipulation).

Smoothing of reported income can be achieved through real smoothing or artificial smoothing. Real smoothing means the real transaction is done or not done based on the smoothing effect over income. Artificial smoothing means smoothing income done by applying the accounting procedure to move cost and revenue from

one period to another one, stated by (Dascher & Malcolm; 1970) as cited by Assih (1998). Finally, income smoothing is achieved through some dimensions of smoothing. First, smoothing through event occurrence and or recognition. It means that management determine real transaction until its effect to reported income tends to decrease the income variation for a certain period. Second, smoothing through allocation overtime, means with the occurrence and recognition of a certain event the management has certain determination of control policy that affected by the event quantification. Third, smoothing through classification, the management classify items in the financial statement to decrease income variability all along the time, showed by(Ronen & Sadan; (1975) as cited by Jin She Liaw(1997).

Bortov (1993) in his study examined whether manager manipulate the income through the determination of income recognition from the sales of long term asset and investment. The reason is because manager can choose the sales period of a long term asset and the principal of gain cost serve as a basis for accounting judgement. It means, the change of an asset market value between gain and sales is reported in sales period. This situation makes manager has chance to manipulate the income through determining the asset sales period with low cost. The result of this research is consistent with time determination done by manager, then the income recognition from sales of asset and long term investment can be used to smooth the income over time. The result significantly show that income from sales of asset are higher for the firm who has low annual income than firm who has high annual income.

2.1.2 Factors Affecting Income Smoothing

There were some factors effecting income smoothing that was stated in the previous studies, and reason why the managers choose to practice income smoothing. Some of the factors that was stated in their research are:

a). Company's Size.

Company is often become the object of act by government and society. They tend to impose the cost that is suitable with a firm's ability. Usually a large firm is asked to have bigger cost than small one. That is why, to avoid the drastically increase in earning, so the firm will be avoided from high cost load by government and society, large companies will have to be pushed to practice income smoothing. Large firm will avoid the earning' s reduction too, because it will cause an assumption that the firm is in crisis and invite the intervention from government(Moses,1987).

b) The Existence of Bonus Plan.

The existence of bonus plan is able to increase the effort to reduce the earning fluctuation, because there is a relationship between the bonus and earning. Managers will accept bonus if they can increase the earning. It is the reason why managers are trying to maximize the reported earning in order to get bigger bonus. But managers won't try to get bonus by maximizing the earning as big as possible, because it will increase the bonus standard at the future. Then, management will try to minimize earning if the real earning is too high, and maximize it if the real earning is too low(Ilmainir,1993) and (Moses,1987)

c) A Barrier in Entering an Industry.

This factor was found by Kamin and Ronen (1978) at the first time as cited by Zuhroh(1996). This barrier relates to the chance of new competitor in an industry. An industry which has low barrier will be easy to be entered, and give chance for new competitor. In other side, industry with high barrier will be difficult to be entered and give a little chance for new competitor. It makes the firms at the low barrier industry will avoid the raise of earning drastically. Because a raise of earning will invite new competitor. But it will not be happen at the high barrier industry.

d) The Difference among Actual Earning and Normal Earning.

It is assumed as the factor of income smoothing because there are relationship among earning fluctuation, risk, and stock price. A large difference among them indicates the inability of management in earning' s prediction. The inability to predict the earning is related to market risk. The result, a firm will have a bigger risk and lower stock price. The practice of income smoothing is relate to this, and able to give bigger pushing to minimize the earning fluctuation. (Moses;1987).

e) The Impact of the Accounting Policy's Change to Earning.

Moses(1987) said that management has motivation to use the change of accounting policy to increase earning or minimize its fluctuation. This opinion is based on the impact of accounting policy's change to earning and its variability. Actually the effort to increase earning is together with the effort to decrease the earning fluctuation that will occur conflict. When earning above normal, the effort to decrease the earning fluctuation will not in accordance with the effort to increase earning. The result, it will be assumed that there is a cross-point among the use of

minimizing earning fluctuation with the loss of decreasing earning. If the change of the accounting policy consistent with this assumption, the impact of this will be able to be observed.

f) Agency Theory.

The concept of agency theory is relationship between principal and agent (Anthony, Govindarajan ; 1995,569). The principal employ agent to do all of principal interest, included the delegation of authority in making decision from principal to agent. In a company who has capital in stock, stockholders as the principal, and CEO (Chief Executive Officer) as their agent. Stockholder employ the CEO to work for principal interest.

Agency theory has the assumption that every individual is motivated by their own interest then conflict between principal and agent are occurred. The Principal is motivated to have a contract that make themselves welfare with profitability that increase continually. In other side, agent is motivated to maximize their own economic and physicological needed, such as how to get investment, debt, or contract compensation. This conflict is growing more and more because principal can not monitor the CEO's daily activities to make sure that they are already work based on the stockholder wants.

Principal has not enough information about agent performance. Agent has more information about company' s capacity, working environment and about whole company. This condition cause the imbalance information between principal and agent. It is called asymmetry of information. The assumption that each individual are

act to maximize their own interest, make agent exploit the asymmetry of information that they have to the principal. Asymmetry of information and conflict of interest that happened between these two party motivated the agent to provide unreal information to principal, especially when it is related to the measurement of agent performance.

Previous study by Watts and Zimmerman(1986) as cited by Assih (1998) empirically prove that the relationship between principal and agent is determined by the accounting number. This make agent always try to think about how to make that accounting number is useful as tool for their interest. One of the kind of the action is practiced Income Smoothing.

2.2 Risk and Return

In investment, two important things that is need to considered are risk and return. Return is earning that is obtained by the investor from investment. Return can be realized return(already exist) or expected return(has not received yet, but hoped will happened in the future). Realized return is the return that already happened, and its calculation is based on historical data. It is important because it can be used to measure a company's performance. Expected return is the estimation of the value of investment including the change in price and any payments or dividends calculated from a probability distribution current all possible rates of return. Historical return also useful to determine the future expected return and risk. The return on the market as a whole is called market return. Return and risk are related to each other, because the consideration of investment is trade- off from both factors. Risk is a variability of

an expected return. The relation between risk and return that usually hold in which one must be willing to accept greater risk if one wants to pursue greater returns (Fachrudin and Hadianto;2001).

Investors invest for anticipated future returns, but those return rarely can be predicted precisely. There will almost always be risk associated with investments. Actual or realized return will almost always deviate from the expected return anticipated at the start of the investment period. For example, since 1926 the rate of return on common stocks of large firms has averaged about 12% per year. But actual return have varied widely around this average value. In 1931(the worst calendar year for the market since 1926) the stock market lost 43% of its value. In 1933(the best year) the stock market gained 54%.We can be sure that investor did not anticipate such extreme performance at the start of these years. While the expected rate of return at the start of any year maybe around to 12%,investors know the actual returns might not be even close to 12%(Alex Kane, Bodie;1998)

2.2.1 Concept of Risk- adjusted Return

Risk adjusted return is a measure of how much an investment returned in relation to the amount of risk is took on, often used to compare a high risk potentially high return investment, with low risk low return investment. The concept of risk adjusted return is simple: For every unit of additional risk the investor will get a unit of additional return. This is true in the broadest sense, but note that the rule does not hold at the extreme ;

- **Extreme High End:** What are the chances that your \$1 lottery ticket will win the \$150 million Power Ball Jackpot. Risk essentially becomes infinitely large thus risk-adjusted return cannot be calculated. A few Precious family mutual funds (gold funds.) and many stocks have extreme risk levels.
- **Extreme Low End:** With a passbook savings account, risk essentially goes away, but there is still return. Risk essentially becomes infinitely small thus a meaning full risk-adjusted return cannot be calculated. Many mutual funds but only a few stocks come in at the low end of risk.
- **Middle Ground:** Fast Track can predict return based on volatility as measured by Standard Deviation ($SD=$). This section discusses controlling parameters which govern how the predicted return is calculated. This middle ground is occupied by most stocks and most equity mutual funds.

(www.fasttrack.net/ads/ftwinhlp/riskadjustedreturn.htm-6k-cached)

Other concept of risk adjusted return is developed by Professor William Sharpe (Nobel Laureate and Stanford Economic Professor). The concept is called Sharp Ratio. Investors are risk averse. It means that if they are going to assume risk, they want the most return per unit of risk that they assume. With the help of sharp ratio, investor can measure how effectively a fund utilizes risk, and compare funds with different risk profiles. The Sharp Ratio measure a fund's return excess of the risk free rate (usually 90 days T bills) for a given period (usually 36 months) and divides it by the standard deviation (a statistical measure of risk) of those return in the given period. The higher a fund's Sharp Ratio, the better the fund's historical risk-adjusted performance. A high number means the investor get

more return per unit of risk. Despite its wide acceptance among academics and institutions, the Sharp Ratio is not well known among the general investing public. Modigliani and Modigliani (M&M) introduced a similar measure of risk in 1997. Since their measure is expressed in percentage points, M&M believe that average investors can more easily understand it. The Modigliani measure states the fund's performance as it relates to the market. This measure equals the return the fund would have received if it has the same risk the market index had. Like the Sharp Ratio, the higher the number the better. Since this measure is relatively new, it is still early to tell if investors will embrace this concept with more understanding. (www.google.com)

2.2.2 The Relationship of Income Smoothing and Risk-adjusted Return.

Income smoothing is practiced in order to increase the company's stock price and to avoid the income's fluctuation then it will increase the risk adjusted return too, that is expected by the investors. The fluctuation of income really influences the investor's interest and also company's stock price, at least it will affect a company's market value (Utami, Suharmadi; 1998). Every investors expect high return from their investment, and it is suitable with the risk that they have to take.

Michelson et al (2000) said that smoothers have significantly greater risk adjusted returns than nonsmothers, and smoothing firms are consistently larger in size than nonsmoothing firms. The findings suggest that investors do give preference to smoother income streams and that smoothing is related to positive

abnormal return. According to this statement, income smoothing and risk adjusted return has a positive relationship. It means, a benefit relationship between them, where when a firm smooth its income, the effect is positive, because it can increase the firm's stock price, greater risk adjusted return, and firm's market value.

2.3 Previous Studies

There were several studies about income smoothing and its relationship to many factors, whether western research or Indonesian research. Those studies can be used as the references for the readers and the researcher to be the reason and sources of this study. Here are the summaries of their findings:

A) Vivian Beattie, Stephen Brown, David Ewers, Brian John, Stuart Manson, Dylan Thomas and Michael Turner (1994)

Beattie et al, assumed the object of smoothing in this study is the reported profit after tax, but before extraordinary items, and discuss the relationship within this framework, between the accounting choice, earnings management and income smoothing literatures. The initial sample comprises the 300 companies in the 1989 – 1990 survey of UK published accounts (ICAEW, 1990). Of these, 49 companies were excluded because they did not report any DCI' s, and a further 23 were eliminated at this stage due to large blocks of missing data, leaving 228 observations. The results of this study, are:

1. There is a significant positive associations between single- period income

smoothing with earnings variability, dividend payout, managerial share options and the diffuseness of share ownership.

2. An indications that the incentives to smooth are positively related to the magnitude of the effect of classificatory choices, relative to expected earnings.

B) Stuart E. Michelson, James Jordan- Wagner and Charles W. Wootton (1995)

Michelson et al did research on the association between income smoothing and performance in the market place. The paper examines a) tendency of major corporation to become income smoothers, b) the difference in the mean return on the common stock of smoothing and non-smoothing firms, and 3) the relationship between perceived market risk and income smoothing. This study examined a sample of 358 firms from an initial sample of the Standard & Poor's 500 for period January 1982 until December 1991.

The research conclusion :

1. There is a finding that firms that smooth income have a significantly lower mean annualized return than firms that do not smooth income.

2. An observation that smoothing firms have lower betas (risk) and higher market value of equity.

3. Find lower returns, lower risk, and larger firm sizes for smoothing firms.

These results lead to the conclusion that seem appropriate when viewed in this context of primarily large firms with stable net incomes having lower overall risk and return.

C) Geoffery Booth, Juha- Pekka Kallunki and Teppo Martinkeinen (1996)

The purpose of this paper is to investigate whether the post announcement unexpected return behavior differs between firms that naturally smooth and do not smooth their income in Finland. The data of the study consist of all 31 Finnish firms that were listed during period 1989- 1993 in the Helsinki Stock Exchange (HSE) and that have accounting data available for the period of 12 years before the event date.

The conclusions of the research, are:

1. most of the return difference during the post announcement period is due to the market reaction to the earnings surprises of the firms that do not have smooth income series.
2. There is delay on how returns caused by accounting earnings releases appear in the stock market.

D) Ahmad Samliawi and Bambang Sudibyo (2000)

This research was focused on the analysis of relationship between income smoothing behavior and companies performance in the capital market and also examine whether banking sectors did more smoothing than non- Banking. The sample were used are 116 firms listed at Jakarta Stock Exchange on January 1, 1991. it used six years data (1991 – 1996) of number of firms, daily composite stock price index, dividend payment, and total number of outstanding stock. The conclusions of the research are:

1. There are some firms that practice income smoothing in Jakarta Stock Exchange.

2. When loose definition of income smoothing is applied, 1) there is an evidence that the average annualized return of smoother firms are significantly different with non-smoother firms, 2) the larger companies tend to do income smoothing than small ones, 3) banking firms tend to practice income smoothing than non-banking firms.

3. When stricter definition of income smoothing is applied, 1) there is no evidence about the difference of average annualized return between smoother and non-smoother firms, 2) no supported evidence about the difference number of larger firms and small ones who are practice income smoothing, 3) and also the difference number of banking and non-banking firms that practice income smoothing.

4. There is no finding about the difference of company' s risk between smoother and non- smoother, although loose and stricter definition are applied.

E) Dwiatmini and Nurkholis (2001)

The focus of this research is analyzing the market reaction in the case of income smoothing on the companies listed at JSX. The sample is 35 companies from the 172 companies listed at JSX. The period is from December 1993 to December 1998. This research used Index Eckel to classify a firm is smoother or nonsmoother. The conclusion of this research are ;

1. Market reaction is not too strong for the smoother companies, and it shown that income smoothing is practiced in Indonesian stock market.

2. Income has an information compilation that is useful for market, and it is seen from the relationship of unexpected income and abnormal return around the date of income announcement of a company.

3. Average abnormal return that happened in the period of income announcement (11 days) is not significant statistically.

4. The practice of income smoothing which are done by a firm is useful to improve a firm performance for the investors, because low variability of income means that the risk of the firm is low too.

F) Liaw She Jin (1998)

This research focussed on the factors which effecting the practice of income smoothing in companies listed at JSX. The sample are 117 go public companies from 1991 to 1996. The conclusion are as follows:

1. Practice of income smoothing is done by companies in JSX, especially for manufacture co and finance boards. It was seen from the operating income after tax and using descriptive statistical analysis.

2. Smoother firms have higher total asset and smaller profitability average and operational leverage than non smoother firms.

3. By doing inference statistical analysis (univariate and multivariate), operational leverage influence the income smoothing, and total asset, profitability and industrial factor are not influence the income smoothing.

4. There are other factors that influence the income smoothing, such as bonus plan existence, stock price, the effect of accounting policy over income, etc. It is consistent with Moses (1987) and Ilmainir (1993).

2.4 HYPOTHESIS FORMULATION

Considering the result of the previous study, in determining the relationship between income smoothing and risk adjusted return, three alternatives hypothesis will be tested following this research :

Hypothesis 1 : Smoother companies have greater risk-adjusted return than nonsmoother.

Hypothesis 2 : There is a difference in cumulative average abnormal returns between smoothing and nonsmoothing firms.

Hypothesis 3 : Income smoothing has relationship with risk-adjusted return.

CHAPTER III

RESEARCH METHOD

3.1 Research Method

This research applied quantitative data analysis to examine the relation between income smoothing and risk adjusted return of manufacturing companies in JSX. Quantitative analysis is a characteristic of variables when the value is stated in the numerical form.

3.2 Research Subject

The subject of this research that is used as sample are manufacturing companies that are listed in the Jakarta Stock Exchange in the period that the researcher take as sample that is from January 1993 -December 2000, with its classification based on the company size. Meanwhile, the sample was taken using Jakarta Stock Exchange Fact Book at the period year that is used as sample, and total sample that will be used in this study are manufacturing companies listed at Jakarta Stock Exchange.

3.3 Research Instrument

Data collection was executed by compiling the secondary data in the Jakarta Stock Exchange corner in Universitas Islam Indonesia Yogyakarta. Data collection and the sources of data are described below:

- a). Data for daily risk adjusted return is gathered from Jakarta Stock Exchange corner on the 3rd floor.
 - b). Operating Income after depreciation (OIADP), Pretax income(PI), and net Income(NI) are gathered from the company's financial statement provided in Indonesian Capital Market Directory (ICMD).
- Both data above are listed in Jakarta Stock Exchange. The data are gathered by manual writing and downloading from the computer on the Jakarta Stock Exchange corner in Universitas Islam Indonesia Yogyakarta.
- c). Manufacturing companies listed in JSX from 1993 to 2000. The list was gathered from JSX corner on the 3rd floor.
 - d). Data for daily abnormal return is gathered from JSX corner on the 3rd floor.

3.4 Research Variables

Variables used in this study were smoothing, size, and risk adjusted return.

Those variables were measured as follows:

- a). Daily risk adjusted return of each stock is calculated as follows:

$$ARPKOR_t = RETH_t (ALPAKOR_t, BETAKOR_t, RETPBN_t)$$

ALPAKOR_t = coefficient of alpha from Beta Regression which is corecctioned by Fowler and Rorke's method period 4 lead and 4 lag for a year.

BETAMENST_t = Beta mentah(Raw Beta) which is corrected by Fowler and Rorke's method period 4 lead and 4 lag from daily return regression for a year.

RTPBN_t = daily market return for day t.

b). Using the Index Eckel (1981) to classify whether a firm are smoother or non-smoother. The application of the model;

$$\text{Income smoothing index} = (\text{CV}_{\Delta I} / \text{CV}_{\Delta S})$$

where ΔI = average period change in income

ΔS = average period change in sales

CV = coefficient of variation

Income smoothing index is indicated by an index of less than 1 (< 1 is called smoother).

To measure the coefficient variation the formula that will be used is :

$$\text{CV} = \frac{\text{Standard Deviation}}{\text{Expected value}}$$

c) OIADP, PI, and NI use the ratio of the coefficient of variations of these three measures with respect to the coefficient of variation in sales to identify our sample of firms as smoother or nonsmoother for each income measures. Then, these ratios will

be added based on the year 1993 until 2000. The purpose is to provide a time series data to identify whether a company practice income smoothing for some years are realistic.

d) Company size is seen from the total asset of each company in the sample after taking the logarithms.

e). Cumulative average abnormal return. The model to calculate the cumulative average abnormal return, in this case is taken from Michelson, et al (2000) model.

$$CAAR = \frac{1}{N} \sum_{j=1}^N \sum_{t=T_1}^{T_2} AR_{jt}$$

where

- N** = number of companies
- T₁** = beginning month (January)
- T₂** = ending month (December)
- jt** = company *j* trading month *t*

3.5 Research Procedure

In order to answer the research problems, it is imperative to construct research procedures. The procedures were arranged as follows;

- Doing the statistical test to find out whether there was a significant variation on the relationship among those variables.
- Analyzing and interpreting the data.
- Deriving conclusions and any other findings.

3.6 Technique of Data Analysis

3.6.1. Population and Sample

Population is a collection of all possible individuals, objects or measurements of interests (Mason, Lind, Marshal,1999;7). The population of this research is companies listed in JSX. Sample is a portion or part of the population of interest. The sample of the data is manufacturing companies. Based on the explanation, the samples of the study are those manufacturing companies that met the following criteria :

- a) All manufacturing firms that is registered in the Jakarta Stock Exchange since January 1993-December 2000.
- b) The firms published its financial statement per December 31st for period of 1993 until 2000.
- c) The firms are not delisting during the sample period.
- d) The firms are not doing merger and acquisition, and also change their industry during the sample period.

Before using those criteria the total number of the firms are 147 firms. But after use those criteria, the total manufacturing companies that will be used are 58 manufacturing companies.

3.6.2 Basic Model

The statistical model that will be used in this research is Multivariate Regression Analysis to test the combination of the independent variable. The Regression model is written as ;

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \epsilon_i$$

Where :

Y_i = risk-adjusted return (dependent variable or endogenous variable)

X 's = income smoothing and size as independent (explanatory) variables or exogenous variables.

β ' s are the unknown parameters.

β_0 is the parameter on the constant β_1 through β_k are known as the partial regression coefficients.

ϵ_i = random disturbance term ϵ is added to the regression model to capture unobservable and random effects that effect Y.

The β 's measure the effect of one unit change in X on the dependent variable, Y, holding all other variables constant. For example, β_1 measures the impact of one unit change in X_1 on Y, while holding X_2 through X_k constant. In other words, it gives the slope of equation (1) with respect to X_1 holding X_2 through X_k constant.

To examine the hypothesis, the following models were used:

1. Oneway ANOVA test is used to test the hypothesis about the comparison between two population mean which is aimed at finding out whether the risk adjusted return is greater or not and the cumulative average abnormal return is significantly different or not (hypothesis one and two).
2. The multivariate regression analysis is used to examine the relationship between income smoothing and risk-adjusted return (hypothesis three).

The regression model used here are:

$$CAARPKOR_j = \beta_0 + \beta_1 SMOOTH_j + \beta_2 SIZE_j + \epsilon_j$$

Where :

CAARPKOR : Cumulative average risk-adjusted return

SMOOTH : zero for nonsmoother and one for smoother.

SIZE : taking the logarithms of total asset.

3.6.3 Hypothesis Testing

Based on the hypothesis formulation, hypothesis can be drawn as follows :

H_{01} : Smoother companies do not have greater risk adjusted return than nonsmoother.

H_{A1} : Smoother companies have greater risk adjusted return than nonsmoother.

The statistical hypothesis then can be formulated as follows:

$$\mathbf{H}_0: \mu_1 \leq \mu_2$$

$$\mathbf{H}_A: \mu_1 > \mu_2$$

Where :

μ_1 = CAARPKOR for smoother

μ_2 = CAARPKOR for nonsmoother

The hypothesis was tested by using oneway ANOVA test. The data were then processed using MINITAB computer software. The test for hypothesis one was done by analyzing the level of significance of the comparison of risk adjusted return whether it is greater or not between smoother and nonsmoother. If the value of P-statistic is significant, the hypothesize cannot be rejected.

H_{02} : There is no difference in cumulative average abnormal returns of manufacturing industries between smoothing and nonsmoothing firms.

H_{A2} : There is a difference in cumulative average abnormal returns of manufacturing industries between smoothing and nonsmoothing firms.

The statistical hypothesis can be formulated for hypothesis two :

$$\mathbf{H}_0: \mu_1 = \mu_2$$

$$\mathbf{H}_A: \mu_1 \neq \mu_2$$

Where :

μ_1 = CAAR for smoother

μ_2 = CAAR for nonSmoother

Hypothesis two was tested by using oneway ANOVA. Then the data was processed using MINITAB computer software. The test was done by analyzing the level of significance of the difference of CAAR between smoother and nonsmoother companies. If the value of P- statistic is significant the hypothesis cannot be rejected.

H_{03} : Income smoothing does not have relationship with risk-adjusted return.

H_{A3} : Income smoothing has relationship with risk-adjusted return.

For hypothesis three, the statistical model used :

$$H_0: \mu_1 = \mu_2 = 0$$

$$H_A: \mu_1 \neq \mu_2 \neq 0$$

Where :

μ_1 = Coefficient Correlation of Smooth

μ_2 = Coefficients Correlation of CAARPKOR

Hypothesis three is conducted by calculating the coefficient correlation of cumulative average risk adjusted return on the smoother variable. The data were then processed by using SPSS (statistical package for social science) computer software. The testing for the hypothesis was tested by analyzing the significance of risk adjusted return coefficient correlation on the smoother companies. If the risk adjusted return coefficient is significant, the hypothesis will be accepted.

CHAPTER IV
RESEARCH FINDINGS,
DISCUSSIONS AND IMPLICATIONS

4.1 Research Description

This chapter is aimed at describing the data collection process, research, findings, discussions, and implications of the variables used in the research. All of the results explained here were obtained by following the research procedures that had been stated in the Research Method in chapter 3.

4.1.1. Research Preparation

This research began on March 2002, starting with the study of literature, the earlier survey, and the research proposal. The field survey to collect data was performed on July 2002. The result of the data was then analyzed in December and continued with the writing of the research report.

4.1.2. Data Processing

The data for risk-adjusted return from January 1993 until December 2000 were collected from the Jakarta Stock Exchange corner at the 3rd floor at the Faculty of Economic, Universitas Islam Indonesia. The data for operating income after depreciation, pretax income net income and sales were gathered from ICMD (Indonesian Capital Market Directory). These data are used in determining the

income smoothing practice. Data for total asset were gathered also from ICMD, and after taking the logarithms, the company size can be determined. Then the data for daily abnormal return were gathered from JSX corner at the 3rd floor at Faculty of Economic Universitas Islam Indonesia.

From all manufacturing companies that were listed in Jakarta Stock Exchange from 1993 until 2000, this research finally obtained 58 companies that were appropriate for the research requirements. The data was then processed using Microsoft Excel , SPSS release 11,0 and MINITAB release 11 for the ease of data analysis.

4.2. Research Findings

This section describes the broad picture of the data processing results for each variable used in the research.

4.2.1. Smoothing

Smoothing shown the practice of income manipulation done by a firm. The purpose is to pressure the sharp income stream, so it will be seen as stable by the investors. Appendix 1 provides the list of smoother and nonsmoothing firms on the manufacturing industries listed in Jakarta Stock Exchange (JSX). From the appendix, it can be seen that most of manufacturing industries at JSX practice income smoothing.

4.2.2. Risk –adjusted Return

Risk- adjusted return reflects the information about how many return that will be accepted by the investors in accordance with the risk that they have to take. Smoother companies hoped that their company can get higher risk adjusted return through smoothing. Appendix 2 provides the data for cumulative risk adjusted return for smoother and nonsmoother in 1999 and 2000.

4.2.3. Abnormal Return

Abnormal return reflects the difference of realized return and expected return. The investor expect a certain return, but in fact it is not realized, whether higher or lower than the expectation. Appendix 3 provides the data of cumulative abnormal return for smoother and nonsmoother in year 1999 and 2000.

4.3. Hypothesis Testing

This section will discuss about data analysis result, and the interpretation from processing result that will be explained one by one.

The result of the hypothesis testing for hypothesis one was completed with oneway ANOVA test. The test is used to analyze the level of significance on the comparison of cumulative risk adjusted return between smoother and nonsmoother, whether smoother has greater CAARPKOR than nonsmoother. The result of the testing for hypothesis one is described in table 4.1 (on the next page).

Table 4.1 Oneway ANOVA test for CAARPKOR.

Source	DF	SS	MS	F-value	P-value
Smooth	1	0.000097	0.000097	0.10	0.747

The first hypothesis test, which is concerned with the significant variation of smooth and CAARPKOR results in the finding of f-value 0.10 with p-value 0.747. The p-value has a higher value than 5% level of significance, which means that all samples do not show significant variation between smooth and CAARPKOR, because there is no sufficient evidence to prove that smoother has greater risk adjusted return than nonsmoother. Therefore, the conclusion that is reached is hypothesis testing does not confirm the first hypothesis (H_{A1}), which describes smoother have greater CAARPKOR than nonsmoother.

The test for hypothesis two was done by using oneway ANOVA test. The purpose of the test is to analyze the level of significance on the difference of CAAR between smoother and nonsmoother. The hypothesis testing result is described in table 4.2 on the next page.

Table 4.2 Oneway ANOVA test for CAAR

Source	DF	SS	MS	F-value	P-value
Smooth	1	0.00047	0.00047	0.12	0.726

With critical value = 2.80

Test of hypothesis two which is concerned on the significant variation of smooth and CAAR, results in the finding of F-value 0.12 with P-value 0.726. The f-value is smaller than the critical value, and p-value has higher value than 5% level of significance, which means that all samples do not show the significant variation between smooth and CAAR. There is no evidence to prove the significant difference of CAAR between smoother and nonsmoothing. The conclusion that is reached is the hypothesis testing result does not confirm the second hypothesis (H_{A2}), which states that there is difference in CAAR between smoother and nonsmoothing companies. So the second hypothesis is also rejected.

The result of the hypothesis testing for hypothesis three, using multivariate regression. The purpose of the test is to analyze the relationship between risk-adjusted return with smoothing and size. The result of the testing for all samples is described in table 4.3 (on the next page).

Table 4.3 Correlation test for risk-adjusted return, smoothing and size.

Correlation

		CAARPKOR	SMOOTH	SIZE
Pearson Correlation	CAARPKOR	1.000	-.030	-.171
	SMOOTH	-.030	1.000	.177
	SIZE	-.171	.177	1.000
Sig. (1-tailed)	CAARPKOR		.373	.033
	SMOOTH	.373		.029
	SIZE	.033	.029	
N	CAARPKOR	116	116	116
	SMOOTH	116	116	116
	SIZE	116	116	116

The hypothesis testing for hypothesis three, the relationship of risk-adjusted return and smooth variable that is computed by coefficient correlation is -0.30 , and risk-adjusted return with size is -0.171 . Negative sign means opposite direction and theoretically, the correlation between CAARPKOR and size is greater than CAARPKOR and smooth variable. Size has greater influence on CAARPKOR than smooth. The level of significance between CAARPKOR and smooth and size measured from the probability are greater than 0.05 . It means that there is no

significant relationship between CAARPKOR, smooth and size. Therefore, the conclusion drawn stated that the hypothesis testing does not confirm the hypothesis three (H_{A3}), and accept the H_{O3} hypothesis. This test result leads to a conclusion that there is no relationship between risk-adjusted return with smoothing and size. It is not consistent with Moses(1987) and Michelson, et, all (2000) that state smoother have greater CAARPKOR and smoothing has greater association with larger companies. In this case, the investor can ignore whether a firm is smoother or not, because there is no significant relationship between smoothing and risk, Salno (1999).

4.4. RESEARCH IMPLICATION

This part describes the implication of this research on the theory used as a basis of this research. Signaling and liquidity hypotheses will be delivered to explain the research implication.

Based on the analyze result, this research can prove that most of manufacturing industries listed at Jakarta Stock Exchange are practicing income smoothing. This is consistent with the previous study done by Liaw Shi Jin (1998).

The analysis result on the relationship between smoothing and risk-adjusted return showed that practice of income smoothing does not effect the risk-adjusted return which is hoped by a company. This can be seen by the insignificant variation of CAARPKOR for smoother and nonsmoothing. Unfortunately, this result is not consistent with Michelson, et al (2000) who states that smoother have significantly greater risk-adjusted return than nonsmoothing, and investor prefers to smoother

income stream. Salno (1999) said investor ignore whether a firm smooth or not. The research was a little bit different, because Salno just used risk not risk-adjusted return.

Based on the signaling hypothesis, there is a significant relationship between smoothing and average abnormal return. The result of the analysis shows that there is no significant relationship between smoothing and CAAR. It means that, the CAAR of a company if it is practicing income smoothing is not increased or decreased significantly. This in line with Samlawi, et all (2000) who states that there are no significant differences of average annualized return between smoother and nonsmooter.

The insignificant of the alternate hypotheses showed that each variables in this research did not affect each other. The number of risk-adjusted return and average abnormal return of a company is not affected whether it practices income smoothing or not. The possible reason is because an investor prefer a stable income stream, but an investor will also see the company's growth annually. Although the company's income is stable, but if it is growing slowly, an investor will consider the condition too. Simpson (1969) proved that income manipulation cause incapability of investors to compare the alternatives of investment well, because the manipulation seems to be significant, but it misleads the investors.

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1 Research Conclusion

Based on the research purpose, the statistical test and analyses that have been described in the earlier chapters, some conclusions are drawn as follows:

- a. There is no sufficient evidence to prove that income smoothing has relationship with risk adjusted return. The result of the analysis shows that a company's risk adjusted return can not be increased or decreased by practicing income smoothing, it means that a company's risk adjusted return is not affected by income smoothing. A company's risk adjusted return is affected by its stock price, and its stock price is affected by the investors interest to have an investment on it. Usually, investors will be attracted to invest after they look at a company's financial statement and growth. Smoothing is practiced in order to create a smooth income stream, so the investors will be attracted to invest, then the stock price will increase, so the risk adjusted return will increase too. But it is not happened, because the analysis result shows that smoothing has no relationship with risk adjusted return.
- b. The existence of income smoothing practice can not prove that it is able to increase a company's risk adjusted return and the company's market return. Investors will not consider whether a firm is a smoother or nonsmooter, but they look at the company's growth and its ability in giving the return for them. Income

smoothing is practiced in order to increase the risk adjusted return. The test proves that there is no significant relationship between income smoothing and risk adjusted return. The risk adjusted return is not affected by the smoothing. This indicates that smoother company does not have greater risk adjusted return than nonsmoothing, because its risk adjusted return is not affected by the income smoothing.

- a. Some of manufacturing industries listed at Jakarta Stock Exchange are practicing income smoothing. It can be seen from the number of smoother companies from total samples that is used in this research is greater than nonsmoothing.
- b. Size should be considered to have a relationship with smoothing practice and large companies tend to do income smoothing. But there is no sufficient evidence to prove it, because the test shows that there is no significant relationship between smoothing and size. In other words, income smoothing is practiced by small and large companies, depending on the interest, and large companies do not dominate the income smoothing practice.
- c. The test on cumulative average abnormal return between smoother and nonsmoothing shows that there is no significant difference between them. It is proved that an income smoothing practice can not affect the CAAR of a company significantly, because the difference of CAAR for smoother and nonsmoothing is not significantly different.

5.2. Research Recommendation

After completion of this research the following recommendation has been drawn.

1. Further research hopefully can improve the weakness of the method used in this research. One improvement which will involve implementing this research is involving the stock price list of the smoother and nonsmooter. The purpose is to see the income smoothing effect on the stock price, and the return that is hold from the price. Another improvement will also involve implementing this research, by adding the type of industries, such as finance and bank, mining industries, etc. The aim of this recommendation is to find conclusive evidence that income smoothing is practiced in other industries too, and analyze its effect in that industries, whether it is the same with manufacture or not.
2. Further research concerning income smoothing needs to be performed to increase the available information for users, such as students, lectures, moreover the companies and investors, because the research about income smoothing is rare in Indonesia. It can be proved by the difficulties of the researcher in finding the references.
3. The period of research consideration for the same research hopefully can be conducted over a longer period, in this case more than eight years. The purpose is to provide empirical evidence on the effect of income smoothing on the risk adjusted return which is greater than eight years.

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APPENDICES

Appendix 1

List of Smoother and Nonsmoother Manufacturing Companies in Jakarta Stock Exchange

NO	SMOOTHER COMPANIES	NO	NONSMOOTHER COMPANIES
1	Dynaplast	1	Aqua
2	Indah Kiat Pulp and Paper	2	Multi Bintang Indonesia
3	Pabrik Kertas Tjiwi Kimia	3	Sari Husada
4	Procter & Gambler Indonesia	4	Ultrajaya Milk Industries
5	Branta Mulia	5	Bat Indonesia
6	Mayora Indah	6	Gudang Garam
7	Argo Pantex	7	Centex
8	Eratex	8	Roda Vivatex
9	Panasia Indosentic/Hadtex	9	Bata
10	Indorama	10	Pan Brother
11	Trias Sentosa	11	Duta Pertiwi Nusantara
12	Tifico	12	Ekadharna
13	Mayertex (hanson)	13	INCI
14	Indocement Tunggol Perkasa	14	Good Year Indonesia
15	Itamaraya Gold Industry	15	Merck Indonesia
16	Jaya Pari Steel	16	Unilever
17	Tembaga Mulia Semanan	17	Kurnia Kapuas Glue Industry
18	Lionmesh Prima	18	Delta Jakarta
19	Kabelindo Murni	19	HM Sampurna
20	Socaco	20	Gajah Tunggol
21	Voksel Electric	21	Sobi Corporation
22	Surya Toto	22	Citra Tubindo
23	Trafindo Perkasa	23	Iki Indah Kabel
24	Astra International	24	Metrodata
25	Indospring	25	Prima Alloy Stell
26	Nippress	26	Bayer Indonesia
27	United Tractors		
28	Interdelta		
29	Modern Photo Film Co		
30	Kalbe Farma		
31	Schering Plough Indonesia		
32	Squibb		

Appendix 2

Cumulative risk adjusted return for smoother and nonsmoothing manufacture' s industry in JSX for 1999 and 2000.

NO	FIRM	YEAR	CAARPKOR	CLASSIFICATION
1	AQUA	1999	-0.04791277	NonSmoother
		2000	0.073816434	
2	MLBI	1999	0.019135783	NonSmoother
		2000	0.021864384	
3	SHDA	1999	0.038324688	NonSmoother
		2000	0.027605167	
4	ULTJ	1999	0.038734849	NonSmoother
		2000	0.056625841	
5	BATI	1999	-0.02784016	NonSmoother
		2000	-0.0328458	
6	GGRM	1999	0.006345942	NonSmoother
		2000	0.052800389	
7	CNTX	1999	0.005630055	NonSmoother
		2000	0.037493765	
8	RDTX	1999	0.010540424	NonSmoother
		2000	0.036370018	
9	BATA	1999	0.020445328	NonSmoother
		2000	-0.0263384	
10	PBRX	1999	0.043871357	NonSmoother
		2000	0.051050418	
11	DPNS	1999	-0.014918114	nonSmoother
		2000	0.001539423	
12	EXAD	1999	0.013773223	NonSmoother
		2000	0.05450392	
13	INCI	1999	0.003420302	NonSmoother
		2000	0.032945691	
14	GDYR	1999	-0.00743837	NonSmoother
		2000	0.001482173	
15	MERK	1999	0.025063736	NonSmoother
		2000	0.06751045	
16	UNVR	1999	0.031113373	NonSmoother
		2000	0.013118375	
17	KKGI	1999	0.008292922	NonSmoother
		2000	0.025445194	
18	DLTA	1999	0.016012292	nonSmoother
		2000	0.014748866	
19	HMSP	1999	0.02974548	NonSmoother
		2000	0.048186311	
20	GJTL	1999	-0.01714676	nonSmoother
		2000	-0.00647242	
21	SOBI	1999	0.002020235	NonSmoother
		2000	-0.01300527	
22	CTBN	1999	0.002642843	NonSmoother

		2000	0.03487144	
23	IKBI	1999	0.019068227	NonSmoother
		2000	0.042181817	
24	MTDL	1999	-0.02598346	NonSmoother
		2000	-0.04497683	
25	PRAS	1999	0.047883809	NonSmoother
		2000	0.036831474	
26	BYSB	1999	0.001353834	NonSmoother
		2000	-0.0440155	
27	DYNA	1999	-0.00468611	Smoother
		2000	0.014732926	
28	INKP	1999	-0.03025244	Smoother
		2000	0.021039568	
29	TKIM	1999	-0.03819705	Smoother
		2000	0.023948313	
30	PGIN	1999	0.028888317	Smoother
		2000	0.053340011	
31	BRAM	1999	-0.00104192	Smoother
		2000	-0.07086467	
32	MYOR	1999	0.016852621	Smoother
		2000	0.030343959	
33	ARGO	1999	0.032939527	Smoother
		2000	0.043621354	
34	ERTX	1999	0.010664867	Smoother
		2000	-0.00139264	
35	HDTX	1999	0.052689855	Smoother
		2000	0.037327942	
36	INDR	1999	-0.01135194	Smoother
		2000	0.041940219	
37	TRST	1999	0.001359578	Smoother
		2000	-0.01760887	
38	TFCO	1999	0.005561863	Smoother
		2000	0.037210271	
39	MYRX	1999	0.051361065	Smoother
		2000	-0.03608053	
40	INTP	1999	9.18195E-05	Smoother
		2000	0.05557335	
41	ITMA	1999	0.044563434	Smoother
		2000	0.029712697	
42	JPRS	1999	0.007178552	Smoother
		2000	-0.04868371	
43	TBMS	1999	0.024327988	Smoother
		2000	0.022317164	
44	LMSH	1999	0.013743493	Smoother
		2000	0.042929575	
45	KBLM	1999	0.000898489	Smoother
		2000	-0.00192479	

46	SCCO	1999	0.057253584	Smoother
		2000	0.034854996	
47	VOKS	1999	-0.00145298	Smoother
		2000	0.034207675	
48	TOTO	1999	0.031041392	Smoother
		2000	0.048970622	
49	TRPK	1999	0.052947543	Smoother
		2000	0.083582476	
50	ASII	1999	-0.01078648	Smoother
		2000	-0.00848883	
51	INDS	1999	-0.007286	Smoother
		2000	-0.03412256	
52	NIPS	1999	0.025420766	Smoother
		2000	-0.02289567	
53	UNTR	1999	0.008131796	Smoother
		2000	0.006367767	
54	INTD	1999	-0.02050705	Smoother
		2000	0.010390054	
55	MDRN	1999	-0.00883301	Smoother
		2000	0.01302229	
56	KBLF	1999	-0.02729841	Smoother
		2000	-0.05211047	
57	SCPI	1999	0.026943776	Smoother
		2000	0.052540665	
58	SQBI	1999	0.056868983	Smoother
		2000	0.043499931	

Appendix 3

Cumulative average abnormal return for smoother and nonsmoothing manufacture's industry in JSX for 1999 and 2000.

NO	FIRM	YEAR	CAAR	CLASSIFICATION
1	AQUA	1999	0.032784	NonSmoother
		2000	0.057803	
2	MLBI	1999	-0.01625	NonSmoother
		2000	-0.05398	
3	SHDA	1999	0.028797	NonSmoother
		2000	-0.01847	
4	ULTJ	1999	0.014826	NonSmoother
		2000	-0.05608	
5	BATI	1999	0.05	NonSmoother
		2000	-0.04351	
6	GGRM	1999	0.000222	NonSmoother
		2000	-0.08457	
7	CNTX	1999	0.024113	NonSmoother
		2000	-0.08548	
8	RDTX	1999	-0.00466	NonSmoother
		2000	-0.09037	
9	BATA	1999	0.098512	NonSmoother
		2000	-0.00122	
10	PBRX	1999	0.028464	NonSmoother
		2000	-0.07587	
11	DPNS	1999	0.040739	nonSmoother
		2000	-0.14134	
12	EXAD	1999	0.01552	NonSmoother
		2000	-0.08314	
13	INCI	1999	0.0297075	NonSmoother
		2000	-0.04948	
14	GDYR	1999	0.039728	NonSmoother
		2000	-0.03558	
15	MERK	1999	-0.05696	NonSmoother
		2000	-0.07534	
16	UNVR	1999	0.04687	NonSmoother
		2000	0.002052	
17	KKGI	1999	-0.02068	NonSmoother
		2000	-0.13517	
18	DLTA	1999	0.084082	nonSmoother
		2000	0.02683	
19	HMSP	1999	0.042405	NonSmoother
		2000	-0.06451	
20	GJTL	1999	0.060921	nonSmoother
		2000	-0.0382	
21	SOBI	1999	0.092461	NonSmoother
		2000	-0.0181	
22	CTBN	1999	-0.0459	NonSmoother

		2000	-0.10708		
23	PRAS	1999	0.036567	NonSmoother	
		2000	-0.02662		
24	BYSB	1999	0.041053	NonSmoother	
		2000	-0.02456		
25	IKBI	1999	0.027044	NonSmoother	
		2000	-0.08007		
26	MTDL	1999	0.150431	NonSmoother	
		2000	0.059098		
27	ERTX	1999	0.016963	Smoother	
		2000	-0.08381		
28	HDTX	1999	0.066572	Smoother	
		2000	0.039275		
29	INDR	1999	-0.01534	Smoother	
		2000	-0.05758		
30	TRST	1999	0.08681	Smoother	
		2000	-0.04211		
31	TFCO	1999	-0.02655	Smoother	
		2000	-0.10813		
32	DYNA	1999	0.030089	Smoother	
		2000	-0.04691		
33	MYRX	1999	0.093592	Smoother	
		2000	-0.03638		
34	INTP	1999	-0.00469	Smoother	
		2000	-0.06546		
35	ITMA	1999	-0.03798	Smoother	
		2000	-0.04474		
36	ARGO	1999	0.036567	Smoother	
		2000	-0.03898		
37	INKP	1999	-0.00397	Smoother	
		2000	-0.07751		
38	JPRS	1999	0.083884	Smoother	
		2000	-0.01836		
39	TBMS	1999	0.091775	Smoother	
		2000	-0.01618		
40	LMSH	1999	-0.01369	Smoother	
		2000	-0.06015		
41	TKIM	1999	-0.01662	Smoother	
		2000	-0.08067		
42	KBLM	1999	0.114596	Smoother	
		2000	-0.01067		
43	SCCO	1999	0.054635	Smoother	
		2000	-0.03162		
44	VOKS	1999	0.055915	Smoother	
		2000	-0.05264		
45	PGIN	1999	-0.02651	Smoother	
		2000	-0.09568		
46	TOTO	1999	0.02233	Smoother	

		2000	-0.05457		
47	TRPK	1999	-0.0031	Smoother	
		2000	-0.07751		
48	ASII	1999	0.0567839	Smoother	
		2000	-0.05649		
49	INDS	1999	0.056787	Smoother	
		2000	0.047081		
50	NIPS	1999	0.071266	Smoother	
		2000	-0.11118		
51	BRAM	1999	0.113549	Smoother	
		2000	-0.03614		
52	UNTR	1999	0.123855	Smoother	
		2000	0.02216		
53	INTD	1999	0.031755	Smoother	
		2000	-0.07783		
54	MDRN	1999	0.069623	Smoother	
		2000	-0.04707		
55	MYOR	1999	0.026953	Smoother	
		2000	-0.04125		
56	KBLF	1999	0.12457	Smoother	
		2000	0.024123		
57	SCPI	1999	-0.01623	Smoother	
		2000	-0.08615		
58	SQBI	1999	-0.02376	Smoother	
		2000	-0.05814		

Appendix 4
Determine the Income Smoothing

NO	Firm	Year	AVCHS	AVCHOIADP	AVCHPI	AVCHNI	STDCHS	STDCHOIADP	STDCPI	STDCNI	CVS	CVOIADP	CVPI	CVNI	CVICVS	Classification
1	AQUA	1999	58.238	4.151	3.584	2.458	42362.5914	5847.3720	5841.6083	5104.2077	0.7151	1.4088	1.6301	2.0763	2.9034	Nonsmoothing
		2000	71.722	7.836	8.237	5.812	53841.8286	9312.6588	11671.1152	8618.2132	0.7507	1.1884	1.4170	1.5172	2.0210	Nonsmoothing
2	MLBI	1999	48073.33333	7189.166667	7584.833333	5720.333333	31282.3858	23840.9763	31037.0006	23301.9564	0.6507	3.3144	4.0920	4.0735	6.2600	Nonsmoothing
		2000	60812.83333	16221.16667	12727.5	9813.5	35122.1249	32970.2336	34609.4104	25605.5152	0.5775	2.0325	2.7193	2.8635	4.6118	Nonsmoothing
3	SHDA	1999	58413.5	18132.5	18705.16667	13103.33333	65908.0511	30699.6922	48178.3105	33222.6521	1.1283	1.6931	2.5757	2.5354	2.2471	Non
		2000	75324	21419	26558.83333	18902	76993.6567	31653.8354	51484.2367	35490.3050	1.0222	1.4778	1.9385	1.8776	1.8369	Non
4	ULTJ	1999	29062.83333	3836.166667	-534.5	789.3333333	20723.3583	4584.9274	12562.6495	11028.5293	0.7131	1.1952	-23.5036	13.9732	19.5963	Non
		2000	36897.66667	5284.333333	2054.333333	2024.833333	25524.7080	5891.4634	16558.7080	12616.6289	0.6899	1.1149	8.0604	6.2309	9.0317	Non
5	BATI	1999	145937.5	17910	6607	2686.833333	160295.9618	25579.8384	23129.3415	14910.4018	1.0984	1.4282	3.5007	5.5494	5.0523	non
		2000	117183.5	15568.83333	487330	332425	874016.8440	321637.4064	23236.2546	18534.5717	1.6758	1.7407	3.9880	3.1964	1.9074	non
6	GGRM	1999	1470025.5	447928.8333	486503.1667	352944.8333	872070.3336	332148.1025	558716.8297	410219.7058	0.5932	0.7415	1.1443	1.1623	1.9582	non
		2000	1686825.333	459551.8333	487330	332425	874016.8440	321637.4064	572752.8145	428684.8949	0.5151	0.6999	1.2256	1.2896	2.5036	non
7	ONTX	1999	27604.66667	3411.666667	3157.666667	2190.833333	74894.7729	29640.1416	30638.3158	20815.8520	2.7131	8.6879	9.7028	9.5013	3.5020	non
		2000	40410	69428.16327	6439.333333	4534	68241.7044	29525.5540	30437.9867	20596.5543	1.6987	0.4253	4.7269	4.5427	2.6900	non
8	RDTX	1999	23765.16667	1443.333333	1458.833333	752.3333333	65326.7445	36813.9801	20012.8607	18585.3656	2.7488	25.5062	13.7184	24.7036	8.9689	non
		2000	14478.83333	-2443.166667	936	331	65326.7445	36305.8267	20072.3656	18580.9761	4.5119	-15.6788	21.4448	56.1359	12.4418	non
9	BATA	1999	32438.5	9829.166667	10296.33333	14235.66667	40417.0602	15826.7608	18539.7107	27514.1046	1.2460	1.6102	1.8006	1.9328	1.5512	non
		2000	43362.16667	12796.33333	5435.166667	8663.5	40417.0602	15683.4223	23241.5440	32830.0170	1.0086	1.2256	4.2761	3.7895	3.7572	non
10	PBRX	1999	16731.16667	1700.833333	7063.166667	2456.166667	46000.3885	19604.1050	19489.1344	19491.4883	2.7484	11.5282	2.7593	2.7915	1.0153	non
		2000	26925.33333	1533.166667	3458	2456.166667	51439.2834	19585.3966	16722.7268	16682.5467	1.9104	12.7745	4.8360	6.7921	3.5553	non
11	DPNS	1999	4680.833333	1346.333333	1240	1107.333333	27735.1162	21286.4965	19748.1849	14145.8469	5.9126	15.8181	15.9260	12.7747	2.1606	non
		2000	5265	906.5	3068.833333	2287.666667	27545.0831	21434.4384	19639.6561	14023.8148	5.2317	23.6453	6.3997	6.1302	1.1717	non
12	EXAD	1999	11652	1261.333333	1923	1557.166667	26520.9568	2663.1722	4825.4659	3692.6182	2.2761	2.1114	2.5093	2.3714	1.0419	non
		2000	9608.833333	860.1666667	946.1666667	774	8247.0298	3313.9763	6208.0856	4822.1882	2.9048	3.8527	6.5613	6.2302	2.1448	non
13	INCI	1999	10376.5	4442.166667	3292.666667	2345.333333	2482895.1767	9694.6951	7993.5187	1229805.2894	1.2326	2.1824	2.4277	2.4375	1.9776	non
		2000	8931.5	2957.833333	4114.333333	2951	15016.4406	11761.7598	7268.4567	5716.7145	1.6813	3.9785	1.7666	1.7429	1.0367	non
14	DYNA	1999	28031	4722.5	5839.666667	3911	11345.4976	3859.8243	6723.2651	2176.5317	0.4047	0.8173	1.1513	0.5565	1.3750	non
		2000	44163.5	8297.166667	6302.166667	3505.5	34023.8464	8247.0298	6679.0869	2588.8101	0.7704	0.9940	1.0598	0.7385	0.9586	Smoothing
15	INKP	1999	1437349.833	488782.3333	-14382.66667	-10242.16667	286569.6761	1276374.8066	1235659.4003	1229805.2894	1.7273	2.6113	-85.9131	-120.0728	-69.5161	Smoothing
		2000	2297595.5	596885.1667	527457.8333	211275.1667	2906589.6761	1275804.1318	1841493.1528	1357395.8278	1.2650	2.1735	3.4913	6.4248	5.0787	non
16	GDYR	1999	54790.33333	15310.33333	13333	9776.833333	89258.8277	31538.8133	37778.8111	29065.6947	1.6291	2.0600	2.8335	2.6661	1.6365	non
		2000	48280.33333	1348.666667	1792.166667	1687.166667	93240.9119	52355.6774	51874.4844	36170.1364	1.8921	38.8203	28.9451	21.4384	11.3308	non
17	TKIM	1999	924731.8333	199202.1667	109842.1667	108904	1099744.4698	291452.4203	242125.4057	242177.5132	1.1893	1.4631	2.2043	2.2035	1.8529	non
		2000	1125682.333	-135385.5	-549779	-548937.5	1055427.7253	909910.6443	1699231.6068	1697439.8528	0.9376	-6.7209	-3.0908	-3.0922	-3.2981	Smoothing

57	SCPI	1999	9423.5	-2479.166667	-2197	-1656.5	9101.2672	5637.2823	5539.6415	4357.7596	0.9659	-2.2739	-2.5215	-2.6307	-2.7238	Smoother
		2000	9807	-1097	-2316.833333	-186.1666667	8923.3750	7890.6677	5401.7899	6719.1302	0.9099	-7.1930	-2.3315	-36.0920	-39.6660	Smoother
58	SQBI	1999	215462.3333	54414.83333	11736.16667	14537.66667	510729.3294	140307.9077	51563.3966	56521.6599	2.3704	2.5785	4.3935	3.8879	1.6402	Iron
		2000	236519.8333	59822.16667	71584.83333	58013.66667	502296.9570	138262.4135	148944.3230	112978.2221	2.1237	2.3112	2.0807	1.9474	0.9170	Smoother

One-Way Analysis of Variance

Analysis of Variance for CAARPKOR				
Source	DF	SS	MS	
smooth	1	0.000097	0.000097	F 0.10
Error	114	0.105829	0.000928	P 0.747
Total	115	0.105927		

Individual 95% CIs For Mean
Based on Pooled StDev

Level	N	Mean	StDev	
1	52	0.01552	0.02923	(-----*-----)
2	64	0.01368	0.03143	(-----*-----)

Pooled StDev = 0.03047

0.0100 0.0150 0.0200

Hsu's MCB (Multiple Comparisons with the Best)

Family error rate = 0.0500

Critical value = 1.66

Intervals for level mean minus largest of other level means

Level	Lower	Center	Upper	
1	-0.00760	0.00184	0.01128	(-----*-----)
2	-0.01128	-0.00184	0.00760	(-----*-----)

-0.0060 0.0000 0.0060

One-Way Analysis of Variance

Analysis of Variance for CAAR				
Source	DF	SS	MS	
smooth	1	0.00047	0.00047	F 0.12
Error	114	0.43636	0.00383	P 0.726
Total	115	0.43684		

Individual 95% CIs For Mean
Based on Pooled StDev

Level	N	Mean	StDev	
1	52	-0.00782	0.06202	(-----*-----)
2	64	-0.00376	0.06175	(-----*-----)

Pooled StDev = 0.06187

-0.020 -0.010 0.000 0.010

Tukey's pairwise comparisons

Family error rate = 0.0500
Individual error rate = 0.0500

Critical value = 2.80

Intervals for (column level mean) - (row level mean)

	1	
2	-0.02694	0.01882

One-Way Analysis of Variance

Regression

Correlations

		CAAR	SMOOTH	SIZE
Pearson Correlation	CAAR	1.000	.033	.051
	SMOOTH	.033	1.000	.177
	SIZE	.051	.177	1.000
Sig. (1-tailed)	CAAR	.	.363	.293
	SMOOTH	.363	.	.029
	SIZE	.293	.029	.
N	CAAR	116	116	116
	SMOOTH	116	116	116
	SIZE	116	116	116

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	SIZE, SMOOTH ^a		Enter
2		SMOOTH	Backward (criterion: Probability of F-to-remo ve >= .100).
3		SIZE	Backward (criterion: Probability of F-to-remo ve >= .100).

a. All requested variables entered.

b. Dependent Variable: CAAR

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.057 ^a	.003	-.014	.06207591228
2	.051 ^b	.003	-.006	.06182122005
3	.000 ^c	.000	.000	.06163251619

a. Predictors: (Constant), SIZE, SMOOTH

b. Predictors: (Constant), SIZE

c. Predictor: (constant)

ANOVA^d

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.001	2	.001	.182	.834 ^a
	Residual	.435	113	.004		
	Total	.437	115			
2	Regression	.001	1	.001	.299	.586 ^b
	Residual	.436	114	.004		
	Total	.437	115			
3	Regression	.000	0	.000	.	. ^c
	Residual	.437	115	.004		
	Total	.437	115			

a. Predictors: (Constant), SIZE, SMOOTH

b. Predictors: (Constant), SIZE

c. Predictor: (constant)

d. Dependent Variable: CAAR

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.194E-02	.045		-.709	.480
	SMOOTH	3.036E-03	.012	.025	.258	.797
	SIZE	3.755E-03	.008	.047	.490	.625
2	(Constant)	-2.925E-02	.044		-.670	.504
	SIZE	4.105E-03	.008	.051	.547	.586
3	(Constant)	-5.582E-03	.006		-.975	.331

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	SMOOTH	.969	1.032
	SIZE	.969	1.032
2	(Constant)		
	SIZE	1.000	1.000
3	(Constant)		

a. Dependent Variable: CAAR

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	SMOOTH	SIZE
1	1	2.930	1.000	.00	.01	.00
	2	6.139E-02	6.909	.04	.99	.05
	3	8.671E-03	18.382	.96	.00	.95
2	1	1.991	1.000	.00		.00
	2	8.680E-03	15.146	1.00		1.00
3	1	1.000	1.000	1.00		

a. Dependent Variable: CAAR

Excluded Variables^c

Model		Beta In	t	Sig.	Partial Correlation
2	SMOOTH	.025 ^a	.258	.797	.024
3	SMOOTH	.033 ^b	.351	.726	.033
	SIZE	.051 ^b	.547	.586	.051

Excluded Variables^c

Model		Collinearity Statistics		
		Tolerance	VIF	Minimum Tolerance
2	SMOOTH	.969	1.032	.969
3	SMOOTH	1.000	1.000	1.000
	SIZE	1.000	1.000	1.000

- a. Predictors in the Model: (Constant), SIZE
- b. Predictor: (constant)
- c. Dependent Variable: CAAR

Regression

Correlations

		CAARPKOR	SMOOTH	SIZE
Pearson Correlation	CAARPKOR	1.000	-.030	-.171
	SMOOTH	-.030	1.000	.177
	SIZE	-.171	.177	1.000
Sig. (1-tailed)	CAARPKOR	.	.373	.033
	SMOOTH	.373	.	.029
	SIZE	.033	.029	.
N	CAARPKOR	116	116	116
	SMOOTH	116	116	116
	SIZE	116	116	116

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	SIZE, SMOOTH ^a		Enter
2		SMOOTH	Backward (criterion: Probability of F-to-remove >= .100).

- a. All requested variables entered.
- b. Dependent Variable: CAARPKOR

Model Summary^c

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.171 ^a	.029	.012	.03016786558	
2	.171 ^b	.029	.021	.03003525911	1.702

a. Predictors: (Constant), SIZE, SMOOTH

b. Predictors: (Constant), SIZE

c. Dependent Variable: CAARPKOR

ANOVA^c

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.003	2	.002	1.695	.188 ^a
	Residual	.103	113	.001		
	Total	.106	115			
2	Regression	.003	1	.003	3.420	.067 ^b
	Residual	.103	114	.001		
	Total	.106	115			

a. Predictors: (Constant), SIZE, SMOOTH

b. Predictors: (Constant), SIZE

c. Dependent Variable: CAARPKOR

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.340E-02	.022		2.438	.016
	SMOOTH	-6.507E-06	.006	.000	-.001	.999
	SIZE	-6.744E-03	.004	-.171	-1.812	.073
2	(Constant)	5.339E-02	.021		2.517	.013
	SIZE	-6.745E-03	.004	-.171	-1.849	.067

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	SMOOTH	.969	1.032
	SIZE	.969	1.032
2	(Constant)		
	SIZE	1.000	1.000

a. Dependent Variable: CAARPKOR

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	SMOOTH	SIZE
1	1	2.930	1.000	.00	.01	.00
	2	6.139E-02	6.909	.04	.99	.05
	3	8.671E-03	18.382	.96	.00	.95
2	1	1.991	1.000	.00		.00
	2	8.680E-03	15.146	1.00		1.00

a. Dependent Variable: CAARPKOR

Excluded Variables^b

Model		Beta In	t	Sig.	Partial Correlation
2	SMOOTH	.000 ^a	-.001	.999	.000

Excluded Variables^b

Model	Collinearity Statistics		
	Tolerance	VIF	Minimum Tolerance
2 SMOOTH	.969	1.032	.969

a. Predictors in the Model: (Constant), SIZE

b. Dependent Variable: CAARPKOR

neway

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
CAAR	Between Groups	.000	1	.000	.123	.726
	Within Groups	.436	114	.004		
	Total	.437	115			
CAARPKOR	Between Groups	.000	1	.000	.105	.747
	Within Groups	.106	114	.001		
	Total	.106	115			