#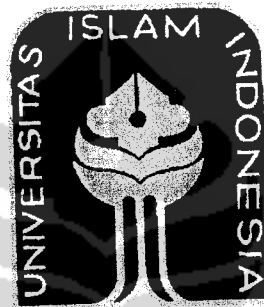 THE ANALYSIS OF THE IMPACT OF CAPITAL STRUCTURE AND OWNERSHIP CONCENTRATION ON AGENCY COSTS: A CASE STUDY ON MANUFACTURING INDUSTRIES LISTED IN JAKARTA STOCK EXCHANGE (JSX) FROM 2001 TO 2004

## A Thesis

Presented as Partial Fulfillment of the Requirements

to Obtain the <u>Bachelor Degree</u> in Management Department

**By**

**ALIN SERAFANA**

**Student Number :    03311040**

**DEPARTMENT OF MANAGEMENT
INTERNATIONAL PROGRAM
FACULTY OF ECONOMICS
ISLAMIC UNIVERSITY OF INDONESIA
YOGYAKARTA
2007**

A Thesis

# THE ANALYSIS OF THE IMPACT OF CAPITAL STRUCTURE AND OWNERSHIP CONCENTRATION ON AGENCY COSTS: A CASE STUDY ON MANUFACTURING INDUSTRIES LISTED IN JAKARTA STOCK EXCHANGE (JSX) FROM 2001 TO 2004

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**April 26, 2007**

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**April 26, 2007**

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# THE ANALYSIS OF THE IMPACT OF CAPITAL STRUCTURE AND OWNERSHIP CONCENTRATION: A CASE STUDY ON MANUFACTURING INDUSTRIES LISTED ON JAKARTA STOCK EXCHANGE (JSX) FROM 2001 TO 2004

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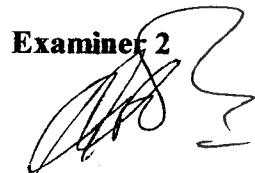
Defended before the Board of Examiners
on April 26,2007
and Declared Acceptable

Board of Examiners

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**Islamic University of Indonesia**
**Dean**

**Asmai Ishak, Drs.,M.Bus.,Ph.D**

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# DECLARATION OF AUTHENTICITY

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

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

Yogyakarta, April 26, 2007

Alin Serafana
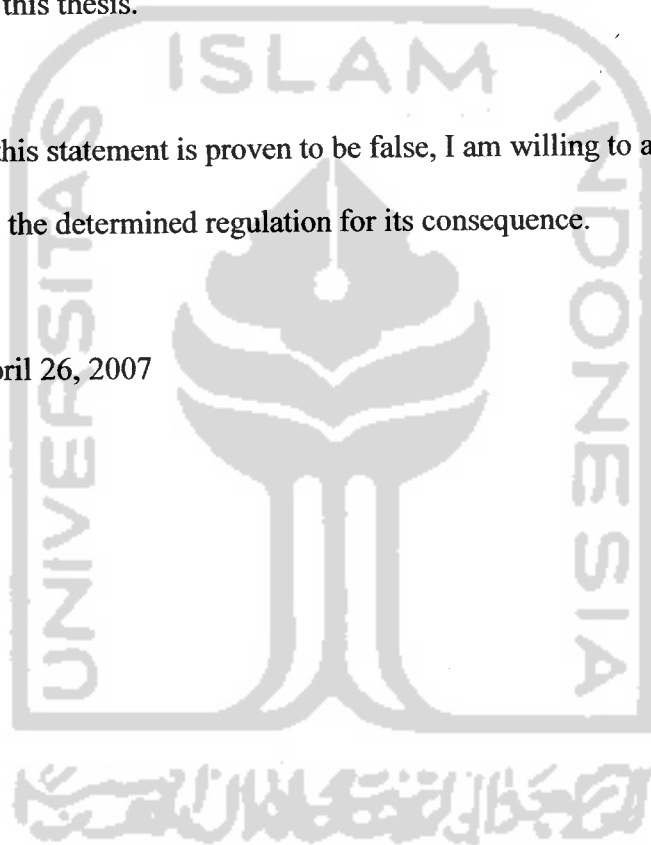
*With love, smile and proud*
*I dedicate this thesis to;*
*My beloved Dad and Mom*
*My Brothers*
*and....*
*Someone outside who will be My Prince*

# MOTTO

"The difficulty is a start of the easiness and the successful"

"Everything will make it, if Allah wants and there is no power except by Allah, if Allah wills (QS. Al-Kahfi 18:39)"

"LOVE, the only reason to make all of these comes true. LOVE to Allah SWT, of course"

## ACKNOWLEDGEMENT

Bismillahirrahmanirrahim

All the praise and grateful are only to Allah SWT, the creator and the owner of everything, because only by His permission and marvelous love so that I can accomplish this thesis. Praise and commend also go to His messengers, Prophet Muhammad SAW, may bless and prosperous come along to him, his family and his fellowship.

The thesis entitle "**THE ANALYSIS OF THE IMPACT OF CAPITAL STRUCTURE AND OWNERSHIP CONCENTRATION ON AGENCY COSTS: A CASE STUDY ON MANUFACTURING INDUSTRIES LISTED IN JAKARTA STOCK EXCHANGE (JSX) FROM 2001 TO 2004**" is compiled as one of the requirements to obtain the Bachelor Degree in Management Department, Faculty of Economics, Islamic University of Indonesia.

I realize that this is a hard work which could never be done alone. Therefore, I would like to thank sincerely to:

1. Asmai Ishak, Drs., M.Bus., Ph.D. as Dean of Faculty of Economics, Islamic University of Indonesia.

2. My sincere gratitude and appreciation go to Akhsyim Afandi, Drs., MA as Director of International Program of Faculty of Economics, Islamic University of Indonesia.

3. I would like to extend my appreciation to Pak Abdul Mo'in, SE, MBA, my content advisor, for his contributive criticism, supervision, time and thought during the writing of this thesis.

4. Cithra Orisinilandari, MA, my language advisor, thank you for supporting me, tremendous corrections and your magic words in making this thesis written in proper English.

5. Staff of International Program – Pak Win, Mas Erwan, Mba Ilham, Mba Alfi, Mba Fanny, Becky, and Bonnie - thanks for all your help and kindness until this

thesis is complete and being examined. I will not forget all of your valuable assistance.

6.  I want to deliver my biggest thanks to my lovely dad, H. Djusal Djohan, ST and my lovely mom, Hj. Aisyah. Thank you so much for always pray and support me for the successful of this thesis. Thanks for given me uncountable helps to raise me up when I am down. You have already worked hard for me, and this is my hard work for you. This is the appreciation that I could show to you, Mom and Dad. And for my brothers; (Alm) Aiko Dimitri, hope you will be proud of me and Sabanano Kamiko, thank you for your support, care, and advice...I love you all...

7.  My nice cousin, Kak Debby...You can be my sister, my best friend and my discussion mates. Thanks for everything you give to me; attention, support, advice and critics. I can take a lot of information from you.

8.  Dower, Susan, Libbie, Lian, Nopi and Riska-my best friends since I have been lived in Jogja. Thanks for the precious and pleasurable moment. Also thanks for attention, support, some critics and comments in order to make me better.

9.  Thanks so much for *WONG 7*, my crazy best friends from the beginning semester-Farah, there is something new from you... Nyit, you are so calm and patient in facing the problems; Siska, and Fina, the twins that cannot be separated.....Titin, rocker style, but melancholic...he..he..and Dede, being a good mother for your child...Thanks for sharing the smile, tears, and laugh. I will never forget our sweet memories.

10. For Bagus, Andi and Singa-my discussion mates, thanks for the great discussions. Thanks for Management IP 2003 students and all students in International Program, FE UII.

11. My boarding house's friends- Frida, there are many things that we can share together. Silent is not the best solution, OK? Esthu, only one word for you. SHOPPING!!! he..he...Dilla, when can we try the new restaurant with the delicious taste anymore?? Opi, indifferent is the best, right?? Isti, thanks for

always standing by if my computer occurred the problem. I will always remember our togetherness.

12. Thanks for my friends in KKN 32 unit 10, especially Ardha, Lina, Tyas, Ino, Ucok, mba Yati. My hang out friends…There are some jokes from you all…. All of you thanks for spending time together.
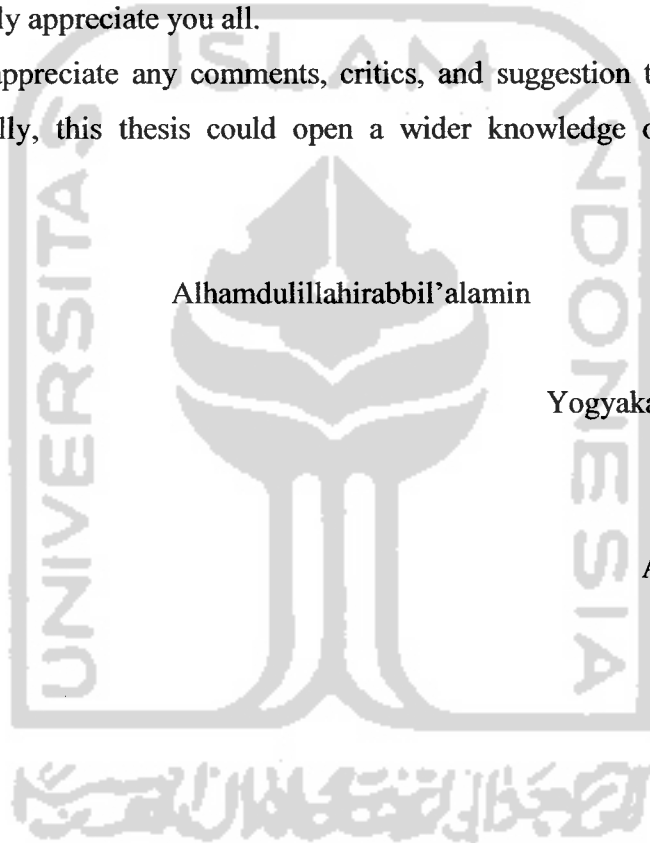
13. All my friends ex- MOEHI.

14. Warmest thanks to those who stood by me enduring the time consumed for this thesis. I truly appreciate you all.

I will appreciate any comments, critics, and suggestion to make this thesis better. Hopefully, this thesis could open a wider knowledge on financial study. Amien…

Alhamdulillahirabbil'alamin

Yogyakarta, April 26, 2007

Alin Serafana

# ABSTRACT

Serafana, Alin (2007) "The Analysis of the Impact of Capital Structure and Ownership Concentration on Agency Costs: A Case Study on Manufacturing Industries Listed in Jakarta Stock Exchange (JSX) from 2001 to 2004" Yogyakarta: Management Department, International Program Faculty of Economics, Islamic University of Indonesia

The purpose of this study is to analyze whether the capital structure and ownership concentration have significant influence on agency costs on manufacturing companies listed in Jakarta Stock Exchange (JSX) from 2001 to 2004 based on the agency theory perspective. The researcher uses asset utilization ratio as proxy of agency costs, the dependent variable and uses Ordinary Least Square (OLS) as the analysis method.

Since the sample of this research are companies listed in manufacturing industries consistently from 2001 until 2004, there are only 113 firms that fulfill the requirements. This research gives two main findings: 1) Capital structure has positive influence on agency costs, but not significant. 2) Ownership concentration has positive significant influence to agency costs, at 5 % significant level. Meaning that the firms with the largest shareholders have a strong interest in the firm performance in improving their asset utilization and therefore have a high ability to reduce the agency cost. This second finding is supportive to a research done by Li and Ciu (2003).

**Keyword**: capital structure, ownership concentration, agency costs, corporate governance

# ABSTRAK

Serafana, Alin (2007) "The Analysis of the Impact of Capital Structure and Ownership Concentration on Agency Costs: A Case Study on Manufacturing Industries Listed in Jakarta Stock Exchange (JSX) from 2001 to 2004" Yogyakarta: Management Department, International Program Faculty of Economics, Islamic University of Indonesia

Tujuan dari penelitian ini adalah untuk menganalisis apakah struktur modal dan kepemilikan terkonsentrasi berpengaruh terhadap biaya agensi pada perusahaan manufaktur yang terdaftar dalam Bursa Efek Jakarta (BEJ) pada tahun 2001 sampai 2004 berdasarkan perspektif teori agensi. Peneliti menggunakan rasio penggunaan asset sebagai proxy dari biaya agensi, variabel dependen dan menggunakan Ordinary Least Square (OLS) sebagai metode analisis.

Karena sampel penelitian ini adalah perusahaan-perusahaan yang terdaftar dalam perusahaan manufaktur secara konsisten dari tahun 2001 sampai dengan 2004, maka hanya ada 113 perusahaan yang memenuhi kriteria. Penelitian ini memberikan dua hasil utama: 1) Struktur modal berpengaruh positif terhadap biaya agensi, tetapi tidak signifikan. 2) Kepemilikan terkonsentrasi berpengaruh positif secara signifikan terhadap biaya agensi, pada 5 % tingkat signifikan. Berarti, perusahaan dengan kepemilikan paling besar memiliki ketertarikan yang besar pula terhadap kinerja perusahaan dalam memperbaiki penggunaan asset mereka. Oleh karena itu, perusahaan dengan kepemilikan paling besar juga memiliki kemampuan yang tinggi untuk mengurangi biaya agensi. Penemuan kedua ini mendukung penelitian versi Li dan Ciu (2003).

**Kata kunci:** struktur modal, kepemilikan terkonsentrasi, biaya agensi, corporate governance

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# CHAPTER I

# INTRODUCTION

## 1.1 Background of the Study

There is a phenomenon on the state-owned enterprises (SOEs) in Chinese listed firms that they still have a lot of things to do on reforming in corporate governance[1]. This is because the majority of Chinese listed firms were restructured and transformed from previous stated owned enterprises or other government controlled entities and there were many problems with the government structure. The central problem with the governance structure is the ambiguous definition of the controlling power of the state shares because the state shares are uniquely big and there is serious impingement upon the interests of small shareholders (Li and Ciu, 2002). Besides, the board of directors is formed mainly by the executive directors and controlling shareholders, directors who are lack integrity obligations, fail to perform their duties industriously.

What has occurred in China is quite similar with go public firms in Indonesia of which most of the shares of the company are dominated by founding family. This phenomenon is in accordance with a research done by Kurniawan and Indriantoro (2000) that shows the ownership structure in Indonesian firms is still

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[1] In its narrowest sense, corporate governance is the relationship of the owners or shareholders of a firm with its manager (Li and Ciu, 2002 quoted from Iskandar and Chalou, 2000), which is often characterized by the economist as "the agency problem"

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dominated by the founding family. Arifin (2005) adds, like China, the board of directors in Indonesia is mainly formed by control shareholders, especially control manager. In this case, agency problem arises between large shareholder and small shareholder.

In developed markets there have been many research that have been conducted concerning with agency problem. As defined by Jensen and Meckling (1976), agency relationship arises whenever one or more individuals, called as a principal hires another individual, called an agent, to perform some service and then delegates decision making authority to the agent. In the next process if both parties have the same aims for maximizing the utility, it can be sure that the agent (manager) will act by using the way which is appropriate with the principal (shareholder and debtholders) interest.

Jensen and Meckling (1976) state that the principal can restrict the divergence of principal's interest by giving the appropriate incentive level to agent and has to expend the monitoring cost for avoiding hazard from the agent. Whereas for wealth maximization, the agent expends the bonding costs for giving the guarantee that the agent will not do the moral hazard which is opposite with the principal interest or to guarantee that the principal will give the compensation if the agent acts appropriately with its contracts. Although it has been done by the agent, it will be different from the action done by the principal. The welfare effect from that difference is called as residual loss. All are often called as agency costs. According to Jensen and Meckling (1976), there are two types of agency costs that have become

the agency problems, which are frequently encountered by firms in establishing an optimal financing policy. Those types are agency cost of debt and agency cost of equity. Both agency costs are based on agency theory.

There are some common ways in decreasing the conflicts of interest between managers and the shareholders. According to Jensen (1993) and Ang (1999) quoted in Li and Ciu (2002), the first way is increasing management ownership because the high management ownership aligns the interests of management and shareholders. Another way is by using debt financing to discipline managers (Jensen, 1986; Stulz, 1990 quoted in Li and Ciu, 2002). The first option is not the focus of this study because the vast majority of go public firms in Indonesia is family founding family.

Thus researcher concentrates on the second way, that is, the impact of capital structure on agency costs. Capital structure is a key mixing between debt and equity in the firm's long term financial structure (Arifin, 2005) of which debt can reduce the agency cost. It is because the agency costs represent important problems in corporate governance both in financial and non-financial industries (Berger and Patti, 2003). The main agency problems relating to capital structure choice (debt-equity level) are commonly associated with incentive conflict stemming from (incomplete) contracting between shareholders and managers, and between shareholders and debtholders.

Jensen's (1986) argues that debt can mitigate the agency problems between the shareholders and the managers of the firm and motivate the management

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to act in the interests of the shareholders. So that is why in agency theoretical framework, the potential conflicts of interest between inside and outside investors determines an optimal capital structure that trades off agency cost against other financing cost. Ownership concentration also has impact on the agency cost in reducing agency cost, as stated by Arifin (2005), that the ownership concentration has less possibility in arising the opportunity for concentrated investor to take action which is damaging other investor.

The research about the capital structure and ownership concentration of the firms on agency costs has been done by prior researchers in overseas, such as Li and Cui (2003). The research about agency costs and ownership structure on small firms has been examined by Ang, Cole, and Lin (2000). Berger and Patti (2003) test the agency theory in capital structure that is applied in banking industries.

Meanwhile, there are no researchers that test the impact of capital structure and ownership concentration on agency costs in Indonesia; most of them only test the corporate governance, such as mentioned by Arifin (2003; 2005), Kurniawan dan Indriantoro (2000). Mahawadartha (2003), Mahadawartha, Hartono (2002) and Sartono (2001) analyze the ownership and Eminentia (2005) tests the agency costs by using the dividend policy.

This research replicates the previous studies and considers the other references for conducting this research. Overall, this study differs from the previous ones on the subject of research, target population and observation research. The writer writes this paper under the title of **"THE ANALYSIS OF THE IMPACT OF**

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**CAPITAL STRUCTURE AND OWNERSHIP CONCENTRATION ON AGENCY COSTS: A CASE STUDY ON MANUFACTURING INDUSTRIES LISTED IN JAKARTA STOCK EXCHANGE (JSX) FROM 2001 TO 2004."**

## 1.2 Problem Identification

This research identifies the problem which focuses on the impact of capital structure and ownership concentration on agency costs on manufacturing companies listed in Jakarta Stock Exchange (JSX) from agency theory context.

## 1.3 Problem Formulation

This research examines the impact of capital structure and ownership concentration on agency costs. Specifically, this study attempts to obtain the empirical view of the following question:

In what extend do the capital structure and ownership concentration influence the agency costs?

## 1.4 Limitation of Research Area

In this case, the writer restricts the research area as follows:

1) The manufacturing companies listed consistently from 2001 to 2004 in Jakarta Stock Exchange (JSX). The researcher uses that observation period because the data is valid and we can see the influence continuously without including the year 2005.

2) The firms that have the complete financial statement during the observation period.

3) The firms that do not show the negative of equity during the observation period because if the equity is negative, the (actual) asset will not represent the normal or healthy condition of the firms.

## 1.5 Research Objective

This research has the objective to analyze whether the capital structure and ownership concentration have significant influence on agency costs on manufacturing companies listed in Jakarta Stock Exchange (JSX) based on the agency theory perspective.

## 1.6 Research Contributions

This research theoretically contributes not only to the literature of the impact of the capital structure and ownership concentration on agency costs, but also the interrelationship between the capital structure of the listed firms, especially on go public manufacturing companies, and agency cost using the agency theory perspective. The result of this research is expected to give any effective and empirical information for the corporate government in Indonesia as a contribution for the development of agency theory with the condition of Indonesia. It can also be an alternative reference for the readers who are going to conduct a similar research.

## 1.7 Definition of Terms

It is necessary to explain the title of the research and other terms which are used in this thesis.

Therefore, the readers will easily find out what the writer tries to explain.

1) Agency costs

Agency cost is the sum of the monitoring costs by principal, the bonding costs by agent and the residual loss (Jensen and Meckling, 1976).

2) Capital structure

Capital structure is a combination of debt and equity (Arifin, 2005) which is put on the right side of a balance sheet.

2) Ownership concentration

The ownership can be said "more concentrated" if in reaching the dominant or majority control, it requires the merger of less investor (Arifin, 2005).

3) Firm size

Firm size is a measurement of companies' performance (Li and Ciu, 2003) as control variable that is measured by Logarithm of Total sales.

4) Size of board directors

Size of board of director is determined by the number of board of director (Li and Ciu, 2003).

# CHAPTER II

# REVIEW OF RELATED LITERATURE

## 2.1 Theoritical Review

### 2.1.1 Agency Theoritical Framwork

Agency theory is "a theory of the ownership (or capital) structure of the firm" (Jensen and Meckling, 1976). Managers are empowered by the owners of the firm- its shareholders- to make decisions. However, the managers may have personal goals that compete with the shareholder's wealth maximization, and agency theory deals with such potential conflict. An agency relationship arises whenever one or more individuals, called a principal, hires another individual or organization, called an agent, to perform some service and then delegates decision making authority to that agent like stated by Jensen and Meckling (1976). They also argue that within the financial management context, the primary agency relationships are those between the stockholders and the managers and also between the stockholders and the creditors.

Agency theory seeks to understand the causes and consequences of goal incongruence and principal-agent problems. Agency theory describes an organization as a nexus of contracts among self-interested principals and agents, including managers, stockholders and board of directors. It argues that the contractual

arrangements that survive are those that best solve the problem of minimizing agency costs.

According to the agency theory, the conflict arises when there is moral hazard inside the firm, which is called the agency costs of equity. Managers may pursue their own interests which may conflict with the shareholders' benefits. As quoted by Li and Ciu (2003), the agency problem can be solved by the increasing management ownership because the high management ownership aligns the interests of management and shareholders (Jensen and Meckling, 1976). Other possibilities include monitoring of management by large shareholders (Shleifer and Vishy, 1986), and the use of debt financing to discipline managers (Jensen, 1986; Stulz, 1990).

## 2.1.2   Mechanism in Reducing Agency Problem

There are two mechanisms to reduce the agency problem; they are monitoring and bonding mechanisms (Jensen and Meckling, 1976). Monitoring mechanism is done by the principal while bonding mechanism is done by agent, in this case is the manager of the firms. One of monitoring mechanism is concentrated ownership that can be said more concentrated if for achieving dominated mechanism or majority, it requires the merger of less investors. Although this mechanism has lower control than the other monitoring mechanism, it has the possibility to arise the chance of concentrated investor to take action which the other investor will get loss (Arifin, 2005).

Secondly is the bonding mechanism. This mechanism can be done by increasing debt (Jensen, 1986 quoted in Arifin, 2005) which is close to empirical study about capital structure. The more the debt increases, the less the share ratio that will be sold to the firm. The less the share value, the less the agency problem arises between managers and shareholders. The other reason, the larger the debt, the easier the firms have to reverse more cash to pay the interest of that debt and the credit of the main debt. Jensen and Meckling (1976) recommend that by increasing debt, the outside equity does not increase so the conflict between outside investor and management does not increase either.

Masdupi (2005) states that the increasing of using debt financing will influence the equity capital movement. Jensen (1986) as quoted in Masdupi (2005) states that the existence of debt will enable the management to handle free cash flow that is used copiously, thus it will avoid the unused investment. Mechanism to reduce the free cash flow as argued Jensen and Meckling (1986) quoted from Arifin (2005) is included in the bonding mechanism, the mechanism which is used by the managers to prove that they will not spend the funds of firm and they encourage taking risk of losing their jobs if they cannot manage the company seriously. So that the agency theory as Jensen and Meckling (1976) suggest, in order to increase the value of firm, the debt is used to mitigate the agency problem between managers and shareholders.

### 2.1.3 Capital Structure Theory/ Model

Capital structure is the mixture (proportion) of a firm's permanent long term financing represented by debt, preferred stock, and common stock equity. According to Arifin (2005), there are three main capital structure theory, they are:

1) Agency Cost/ Tax shield Trade Off Model

This Trade Off Model assumes that the capital structure of the company is determined by considering the benefit of tax reduction when debt increases in one side and agency costs increases when debt increases in the other side. When the benefit of tax reduction is higher than the agency cost, the companies can increase their debt. The increasing debt has to be stopped when the reduction of tax of rising debt is lower than the increasing of agency costs. At this time, this Trade Off Model is used as a mainstream of capital structure theory.

2) Pecking Order Hypothesis

Myers (1984) in Masdupi (2005) states that Pecking Order Hypothesis is a structure of funds used for investment of which retained earning as the first choice then followed by debt and equity. Market imperfection becomes the main issue. Transaction costs and asymmetric information try to link between the firm ability to start a new investment and internal funds. If they should explore external sources, they are more likely to issue debt than to issue equity.

3) Signaling Model of Financial Structure

This theory is arranged based on asymmetric information between the manager and the shareholder. Because the existing of asymmetric information, the manager

tries to give signal to investor. That signal should be something that can be trusted and is not easy to copy. In capital structure policy, a given signal is something used for the enlargement of debt ratio in the firms. Only the risk taker firms will have financial difficulties when the debt ratio of the firms becomes higher. So, high debt ratio is used by the manager as a signal that the company has good performance. Investor will appraise the firms which has high debt ratio with expensive price rather than the firms with low debt ratio. Unfortunately, this theory cannot explain clearly about pattern of capital structure.

## 2.1.4 Capital Structure and Agency Costs

Arifin (2005) states that capital structure relations with agency costs actually is based on the agency theory which is developed by Jensen and Meckling (1976). In agency theory perspective, the managers do not always act appropriately with the shareholders. Jensen and Meckling (1976) argue that the managers on behalf of the existing shareholders are likely to expropriate wealth from their debt-holders by conducting asset-substitution behavior. That is; they may invest in risky projects because if it is unsuccessful, the costs will be shared. The agency costs of debt are typically described in terms of the asset substitution or the risk of shifting problem.

Therefore, it requires the mechanism in order that managers will act appropriately with the shareholders. This mechanism is stated by Jensen and Meckling (1976) that one of the mechanisms is increasing the debt. When the debt ratio in the firms capital structure increases, the financial risk which is the

responsibility of bondholders will increase while the shareholder and the manager remain to be the controller of investment and the firm's operation decisions. This condition will open the chance for the manager to use the bondholders' wealth for shareholder and their interests.

Considering that the manager may do harm to the bondholders, so the preventive effort is done by making the covenants (the limitations that managers do in order that interests of bondholders are not ignored) which is very detail in bond contract (Arifin, 2005). Unfortunately, the covenants make the manager's movement is not free, so the manager cannot optimize their decisions to maximize the firm's value. The obstacles from bondholders that make manager difficult to optimize their decisions is called as agency costs of debt. The optimal position is obtained when the debt ratio of firm reaches certain level so that the debt ratio is added then the amount of agency costs of debt is higher than the agency problem of equity.

Li and Ciu (2003) quoted from Myers (1977) state that debt overhang problem is the firms that may forego good projects if they have significant debt outstanding. The reason is that for a firm facing financial distress, large parts of the return to a good project go to bondholders. Therefore, in choosing their debt-equity level, the firms should trade off between the agency costs of debt and the agency cost of equity.

Jensen and Meckling (1976) apply agency theory to the modern corporation and formally model the agency costs of external equity. Li and Ciu (2003) argue that by appropriately allocating refinance between equity and debt,

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capital structure can balance the conflicts between the investors and management as well as that between management and creditors.

## 2.1.5 Concentrated Ownership and Agency Costs

An essential line of agency costs literature relates to concentrated ownership (Li and Cui, 2003). Stiglitz (1985) in Li and Cui (2003) has argued that one of the most important ways of value maximization by the firms is through concentrated ownership of the firm's shares. Arifin (2005) states that the ownership can be said to be "more concentrated" if in reaching the dominant or majority control, it requires the merger of less investor. Meaning that if the control is held by less investor, the control will be easier to be run.

Arifin (2005) adds, the concentrated ownership mechanism is similar to large shareholder mechanism. Compare with large shareholder mechanism, the ownership concentration has lower control power because it has to do the coordination to run the control due. Nevertheless, in other side, it has less possibility in arising the opportunity for concentrated investor to take action which is damaging other investor. Li and Ciu (2003) states that many scholars, such as Shleifer,1986; Kang 1995; Yosha, 1996; Porta,1998,1999; Park,1995;Denis,1996 argue that outside large shareholder can reduce the managerial entrenchment. As stated by Singh (2003) in Li and Ciu (2003), outside large equity holders has role in disciplining the management, and he finds that outside large shareholders' ownership majority has a

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limited effect on reducing agency costs related to asset turnover. Therefore, ownership concentration has impact on the agency cost in reducing agency cost.

### 2.1.6 Ownership Structure and Indonesian Corporate Governance

Ownership structure is an incentive device for reducing the agency costs associated with the separation of ownership and management, which can be used to protect property rights of the firm (Kumar, quoted in Barbosa and Louri, 2002). Arifin (2005) states that the condition ownership structure of go public firms in Indonesia shows that there is a certain party that has large ownership, such as that defined by Kurniawan and Indriantoro (2000) that the ownership structure in Indonesian firms is still dominated by founding family.

Arifin (2004) states that in Indonesia the portion of family control is the highest which is 71.5 % (for 20% cut off) and controlled by the state is 8.2% as the third highest after Singapore and Malaysia, while the others are controlled by public non financial firms 13.2% and public financial 2%. The board of directors is mainly formed by control shareholders, especially control manager. In this case an agency problem arises between large shareholders and small shareholders.

## 2.2 Previous Studies

There are some empirical studies that relate closely to this research. For example, Li and Cui (2003) examine the impact of capital structure and agency costs in Chinese listed firms. This research finds that if the firms have high debt to asset

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ratio of annual sales to total assets, the creditors are much more concerned about the payment of interest and repayment of principal and will have incentives to monitor the firm. So, the capital structure with high debt decreases the agency costs. The other finding is there is the positive correlation between ownership concentration and agency costs. It occurs because the largest shareholders have a strong interest in the firm performance in improving their asset utilization and therefore it has a high ability to reduce agency cost.

Ang, Cole and Lin (2000) examine the agency costs and ownership structure and they use two alternative measurements of agency costs of firms; ratio of operating expense and asset utilization ratio. They find that agency costs are 1) higher when an outsider rather than insider manages; 2) are inversely related to manager's ownership share; 3) increase with the number of non-manager shareholders, and 4) to a lesser extent, are lower with greater monitoring by banks.

Other previous study which relates to this research is a research by Berger and Patti (2003) that proposes a new approach to test the agency theory using profit efficiency on banking industries relates to capital structure and firm performance. They argue that corporate governance theory predicts that leverage affects agency costs and thereby influences the firm performance. Their findings are consistent with agency costs hypothesis – higher leverage or lower equity capital ratio is associated with higher efficiency and vise versa.

## Conceptual Framework

This research includes two variables, dependent and independent variables which are measured based on agency theory perspective by using OLS (Ordinary Least Squares) analysis for testing the hypothesis. The technical analysis method to test whether the independent variables have influence significantly to dependent variable or not is using t-test statistics as partially test and F-test as simultaneous test.

**Figure 2.1**

**Conceptual Framework of the Research**
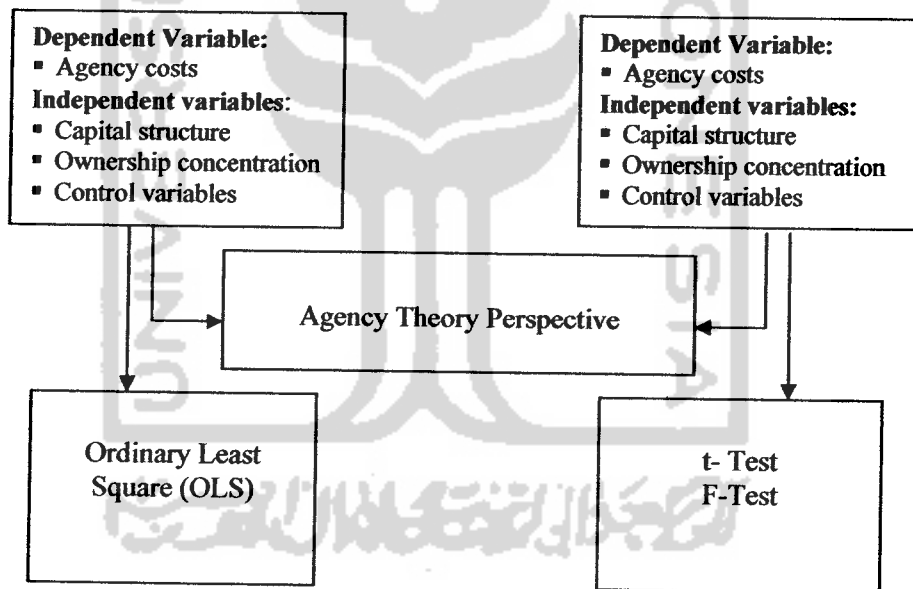


## Hypothesis Formulation

Arifin (2005) explains that a capital structure relation with agency costs is actually based on the agency theory that has already been developed by Jensen and

Meckling (1976). Li and Ciu (2003) and Ang, Cole and Lin (2000) identify the positive relationship between agency costs and capital structure. The results indicate that the firms with higher debt to asset ratio have higher ratio of annual sales on total asset and this relationship is statically significant at better than 1 % level.

Since the largest shareholders have a strong interest in the firm's performance in improving asset utilization, therefore it has a high ability to reduce agency costs. So it means that there is the positive correlation between the ownership concentration and the agency costs, as found by Li and Ciu (2003). Therefore, the writer hypothesizes that:

$H_0$ = Capital structure and ownership concentration do not have influence on agency costs

$H_a$ = Capital structure and ownership concentration have influence on agency costs

# CHAPTER III

# RESEARCHED METHODOLOGY

## 3.1 Research Data

This research used the secondary data. The researcher collected and gathered the data directly from the financial statement of the manufacturing companies listed in Jakarta Stock Exchange (JSX) from 2001 until 2004 which was published by PDPM Faculty of Economy of Gajah Mada University (UGM). The research data were the total asset, total sales, total debt, outside large shareholder, and the number of board of directors during 2001 until 2004.

## 3. 2 Population and Sample

The population of this research was the companies listed in Jakarta Stock Exchange (JSX). The technical method of taking sample was by doing purposive sampling that was the method of taking sample to certain purpose (research). The criteria of taking sample were in the following:

1) The manufacturing companies listed in Jakarta Stock Exchange (JSX) during the observation period from 2001 until 2004. The researcher uses that observation period because the data is valid and we can see the influence continuously without including the year 2005.

2) The financial statement was measured annually, December 31st, in order to avoid

   the existence of partial time effect from variables measured

The list of sample company is provided in **Appendix I.**

## 3.3 Research Setting

This research has been done in the environment of Faculty of Economics in Islamic University of Indonesia, Yogyakarta.

## 3.4 Research Instrument

Data collection included the list of go public manufacturing companies was executed by gathering the secondary data. The annual financial statement was published by the Jakarta Stock Exchange (JSX) that was available and quoted properly from PDPM Faculty of Economy of Gajah Mada University (UGM). The researcher also obtained the data from Indonesian Capital Market Directory, newspaper, and magazine. Journal and literature review were the techniques for the researcher in collecting the data.

## 3.5 Research Variables

There were two research variables that would be used in multiple regression analysis. This research involved five variables consisting of one dependent variable and four independent variables (included two control variables). The agency cost was the dependent variable for this research, and the independent variables are

capital structure, ownership concentration, control variables- such as firm size and size of board of directors.

### 3.5.1 Dependent variable

The proxy of the dependent variable for agency costs is asset utilization which is measured by ratio of annual sales to total asset, following research of Li and Ciu (2003) and Ang, Cole, and Lin (2000). This ratio measures the management's ability to employ assets efficiently. A high ratio of annual to total assets shows large amount of sales and ultimately cash flows that are generated for a given level of assets. Besides the firms with higher debt to asset ratio are more efficient in their asset utilization. While high asset turnover may be identified with efficient asset management practices and hence shareholders value creation, low asset utilization reflects asset deployment for unproductive purposes. Therefore, higher asset turnover has less agency conflict.

$$\text{Asset utilization} = \frac{\text{Total sales}}{\text{Total assets}}$$

### 3.5.2 Independent variable

Independent variables were chosen mainly based on the existing agency literature. The independent variables consist of:

### 3.5.2.1 Capital structure

Capital structure is a combination of debt and equity which is put on the right side of balance sheet. It is measured by debt to asset ratio.

$$\text{Debt to asset ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

### 3.5.2.2 Ownership concentration

Ownership concentration is measured by the percentage of total shareholders held by the outside large shareholder. Li and Ciu (2003) states that many scholars, such as Shleifer,1986; Kang 1995; Yosha, 1996; Porta,1998,1999; Park,1995;Denis,1996 argue that outside large shareholder can mitigate the managerial entrenchment. As stated by Singh (2003) in Li and Ciu (2003), outside large equity holders has role in disciplining the management, and he finds that outside large shareholders' ownership majority has a limited effect on reducing agency costs related to asset turnover.

### 3.5.2.3 Control variables

Those variables included in the regressions to control for other potential influences on agency costs of firms. The variables are:

#### i) Firm Size

The firm size is measured by the Logarithm of total sales.

**Log Total sales**

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Larger firms can be easily accessed to capital market, meaning that Total Sales is an indicator of firms because the higher sales level of those firms, the larger the firms are. The larger firms have more funds that can be used to run the firms, it also means that have funds for the operational of the firm that is sourced from the debt.

ii) **Size Of Board of Director**

The size of board of directors is measured by the number of board of members which is as the mechanism in reducing agency costs. Meaning that the more the number of board of directors, the less the asset utilization (Li and Ciu, 2003).

## 3.6 Research Procedure

In order to answer the research problems, it was necessary to construct research procedures. The procedures were arranged as follows:

1) Calculating each variable

2) Doing the statistical test to find out whether there were significant difference on the relationship among the variables

3) Analyzing and interpreting data

4) Deriving conclusion and any other findings

## 3.7 Statistical Method

Multiple regression analysis is an instrument to measure the influence of independent variables to dependent variable in this research. To test the hypothesis

formulation the writer used the multiple regression analysis by using the OLS (Ordinary Least Square) regression which would be used to analyze agency costs, as dependent variable, measured by ratio of asset utilization respectively.

The multiple regression analysis used as follows:

$$AC = \beta_0 + \beta_1 CS + \beta_2 OC + \beta_3 FS + \beta_4 BS$$

Where:
| | |
|---|---|
| AC | = Agency cost as dependent variable |
| $\beta_0$ | = Intercept |
| $\beta_1, \beta_2, \beta_3, \beta_4$ | = Coefficient of regression from each independent variable |
| CS | = Capital structure, measured by debt to asset ratio |
| OC | = Ownership concentration |
| FS | = Firm size, measured by logarithm of total sales |
| BS | = Size of board directors |

## 3.8 Hypothesis Testing

There are two hypotheses testing to know the significance between independent variable and dependent variable and to get conclusion whether to accept or to reject the hypothesis. They are t-test which is used to test the influence of independent variables partially to dependent variable and F-test to test the influence of independent variables simultaneously to dependent variable.

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### 3.9 Classic Assumption

The regression model that is obtained from OLS (Ordinary Least Square) is regression model which resulting in the Best Linear Unbiased Estimator (BLUE). This condition will occur if there are some assumptions, or it is called as classic assumption:

#### 3.9.1 Multicollinearity

The existence of relationship among independent variables in regression model is called multicollinearity. The linear relationship among independent variables occurred in the form of perfect and imperfect linear relationship (Widarjono, 2005). A model which has big standard error and low t-statistics is an early indication of multicollinearity in model. However multicollinearity occurs if the model we use is not a good model (Widarjono, 2005). To detect whether in the regression model exists the multicollinearity or not, the researcher uses Correlation Matrix.

#### 3.9.2 Autocorrelation

Autocorrelation test is done to know the existence of significant relationship of residual in regression model. If the observation is related to each other, so the autocorrelation appears. The writer used Q-Stat method to detect autocorrelation in regression model.

### 3.9.3 Heteroscedasticity

Heteroscedasticity is a test in regression model to find out the difference variants from residual from one observation to another observation. Heteroscedasticity appears when the residual variant is not constant. There are some methods in detecting the heteroscedasticity, but the writer would use White Method which is a method that does not use assumption about the existence of normality in residual. The White Method used is *"no cross terms"* because there is not any multiply among independent variables.

# CHAPTER IV

# RESEARCH FINDINGS, DISCUSSIONS AND IMPLICATIONS

Data analysis is done by using multiple regression equations. This analysis is done to see the relationship between capital structure, ownership concentration, firm size and board of director. In this case, debt to asset ratio as a proxy of capital structure, ownership concentration is measured by the percentage of total shareholders held by the outside large shareholder, firm size is proxy by logarithm of total sales and board director is measured by the number of board of director.

Analysis data is tested partially and simultaneously in order to know whether those variables have significant influence on asset utilization, as proxy of dependent variable. Hypothesis testing will be done after multiple regression equation used has already been free from classic assumption hypothesis- multicollinearity, autocorrelation and heteroscedasticity.

## 4.1 Research Findings and Discussions

## 4.1.1 Descriptive Statistics

The samples in this research were the manufacturing industries listed consistently in Jakarta Stock Exchange (JSX) from 2001 until 2004. Based on the research's sample criteria and limitation, the research findings determined 113 companies as the samples of the research. Descriptive statistics was used to know the minimum, maximum, mean, median and standard deviation values among the

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research's variables. From **Table 4.1** below, agency costs as dependent variable has mean 106.9442 and standard deviation 85.82573. Mean of capital structure is 50.13336 and standard deviation is 30.74891.

**Table 4.1**

**Descriptive Statistics of Research Variables**

|  | AU | CS | OC | FS | BS |
|---|---|---|---|---|---|
| **Mean** | 106.9442 | 50.13336 | 51.33456 | 8.694447 | 4.747788 |
| **Median** | 94.75500 | 47.40500 | 52.18000 | 8.715000 | 4.000000 |
| **Maximum** | 1541.060 | 450.4400 | 93.50000 | 10.65000 | 13.00000 |
| **Minimum** | 0.090000 | 0.050000 | 2.760000 | 5.440000 | 2.000000 |
| **Std. Dev.** | 85.82573 | 30.74891 | 20.74938 | 0.662014 | 2.018346 |
| **Skewness** | 10.52454 | 5.052677 | -0.017370 | 0.080682 | 1.386406 |
| **Kurtosis** | 173.7634 | 65.11669 | 2.194348 | 4.256158 | 4.545307 |
|  |  |  |  |  |  |
| **Jarque-Bera** | 557527.3 | 74591.31 | 12.24697 | 30.20814 | 189.7733 |
| **Probability** | 0.000000 | 0.000000 | 0.002191 | 0.000000 | 0.000000 |
|  |  |  |  |  |  |
| **Sum** | 48338.77 | 22660.28 | 23203.22 | 3929.890 | 2146.000 |
| **Sum Sq. Dev.** | 3322091. | 426418.3 | 194172.2 | 197.6562 | 1837.248 |
|  |  |  |  |  |  |
| **Observations** | 452 | 452 | 452 | 452 | 452 |

From table above it shows that the ownership concentration is held by large shareholders, that is 51.33456. The average of firm size is 8.694447 with standard deviation 0.662014, while size of board director has mean 4.747788 and standard deviation 2.018346.

### 4.1.2 Classic Assumption Test

### 4.1.2.1 Multicollinearity Test

Multicollinearity is a situation where the relationship among the independent variables in regression model exists. This test is done to know whether the regression model has multicollinearity problem or not. Linear relationship among independent variables occurr in form of perfect and imperfect linear relationship. To detect the multicollinearity in a regression model the researcher uses matrix correlation. As a rule of thumb, if correlation coefficient is high (0.85), it estimates that there is multicollinearity. If the correlation is low, there is no multicollinearity. The correlation coefficient value can be seen on **Table 4.2** below.

**Table 4.2**

**Result of Multicollinearity Test**

|     | AU | CS | OC | FS | BS |
| --- | --- | --- | --- | --- | --- |
| AU | 1.000000 | 0.485970 | 0.082102 | 0.231105 | 0.101153 |
| CS | 0.485970 | 1.000000 | -0.125413 | 0.268720 | 0.059356 |
| OC | 0.082102 | -0.125413 | 1.000000 | 0.143136 | 0.182319 |
| FS | 0.231105 | 0.268720 | 0.143136 | 1.000000 | 0.568203 |
| BS | 0.101153 | 0.059356 | 0.182319 | 0.568203 | 1.000000 |

The above table shows that:

1) Correlation between capital structure and ownership concentration is 0.125413.

2) Correlation between capital structure and firm size is 0.268720.

3) Correlation between capital structure and size of board director is 0.059356.

4) Correlation between ownership concentration and firm size is 0.143136.

5) Correlation between ownership concentration and size of board director is 0.182319.

6) Correlation between firm size and size of board director is 0.568203.

Since the correlation among independent variables has low values (lower than 0.85), it means that there is no multicollinearity happened (Widarjono, 2005).

### 4.1.2.2 Autocorrelation Test

This classic assumption test is aimed to test the existence of significant relationship of residual in regression model. If the observation conducted is related to each other, autocorrelation appears. The writer used Q-Stat method to detect autocorrelation in regression model.

**Table 4.3**

**The Result of Autocorrelation Test**

| Sample: 1 452<br>Included observations: 452 | | | | | | |
|---|---|---|---|---|---|---|
| Autocorrelation | Partial Correlation | | AC | PAC | Q-Stat | Prob |
| .\|. \| | .\|. \| | 1 | -0.001 | -0.001 | 0.0006 | 0.981 |
| .\|. \| | .\|. \| | 2 | 0.009 | 0.009 | 0.0387 | 0.981 |
| .\|. \| | .\|. \| | 3 | -0.011 | -0.011 | 0.0947 | 0.992 |
| .\|. \| | .\|. \| | 4 | 0.034 | 0.034 | 0.6359 | 0.959 |
| .\|. \| | .\|. \| | 5 | 0.017 | 0.018 | 0.7752 | 0.979 |

From **Table 4.3** above, the value of probability of all variables are higher than standard of $\alpha = 5\%$ (Widarjono, 2005). It means that there is no significant relationship among each variable, so autocorrelation problem does not exist.

### 4.1.2.3 Heteroscedsticity Test

Heteroscedasticity appears when the residual variant is not constant. The researcher uses White Method. The White Method used is *"no cross terms"* because there is not any multiply among independent variables. White Heteroscedasticity test based on the number of sample (n) multiply by R-squared ($R^2$) which will be followed by Chi-squares distribution. If Chi-squares value test ($n.R^2$) is lower than critical Chi-squares value ($\chi^2$), it shows that there is no heteroscedasticity happened.

**Table 4.4**

**The Result of Heterocedasticity Test**

| White Heteroskedasticity Test: | | | | |
|---|---|---|---|---|
| F-statistic | 1587.583 | Probability | | 0.00000 |
| Obs*R-squared | 436.7656 | Probability | | 0.00000 |

| Test Equation: | | | | |
|---|---|---|---|---|
| Dependent Variable: RESID^2 | | | | |
| Method: Least Squares | | | | |
| Sample: 1 452 | | | | |
| Included observations: 452 | | | | |

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -44110.95 | 33013.64 | -1.336143 | 0.1822 |
| CS | -495.8555 | 19.05795 | -26.01830 | 0.0000 |
| CS^2 | 4.906519 | 0.057228 | 85.73584 | 0.0000 |
| OC | -72.62683 | 74.67772 | -0.972537 | 0.3313 |
| OC^2 | 0.836127 | 0.715719 | 1.168233 | 0.2433 |
| FS | 11877.13 | 7557.997 | 1.571465 | 0.1168 |
| FS^2 | -579.5840 | 434.0403 | -1.335323 | 0.1825 |
| BS | -239.0183 | 842.3287 | -0.283759 | 0.7767 |
| BS^2 | 19.77161 | 65.43312 | 0.302165 | 0.7627 |

| R-squared | 0.966296 | Mean dependent var | 5415.22 |
|---|---|---|---|
| Adjusted R-squared | 0.965687 | S.D. dependent var | 37739.7 |
| S.E. of regression | 6990.821 | Akaike info criterion | 20.5629 |
| Sum squared resid | 2.17E+10 | Schwarz criterion | 20.6440 |
| Log likelihood | -4638.078 | F-statistic | 1587.53 |
| Durbin-Watson stat | 1.920234 | Prob(F-statistic) | 0.00000 |

From **Table 4.4**, the value of coefficient determination (R-squared) is 0.966296. Chi-squared test value is 436.7656 which is got from Obs*R-squared information calculated from the number of observation multiplied by coefficient determination. For the value of Chi-squares is based on table using α = 5 % with 8 df is 15.5073. Because the value of Chi-squared test (Obs*R Squared) is higher than Chi-squared based on table Chi-squared distribution, it can be concluded that there is heteroscedasticity problem.

### 4.1.3 The Result of Measurement Variables

#### 4.1.3.1 Measurement of Agency Costs

The proxy of agency cost as dependent variable is using by asset utilization which is measured by ratio of annual sales to total asset, based on the research Li and Ciu (2003) and Ang, Cole, and Lin (2000).

$$\text{Asset utilization} = \frac{\text{Total sales}}{\text{Total assets}}$$

The result of the calculation is shown on **Table of the Calculation of Measuring Variables** (see **Appendix II**).

#### 4.1.3.2 Measurement of Capital Structure

Capital structure is a combination of debt and equity which was put on the right side of a balance sheet. It is measured by debt to asset ratio.

$$\text{Debt to asset ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

The result of the calculation is shown on **Table of the Calculation of Measuring Variables** (see **Appendix II**).

### 4.1.3.3 Measurement of Ownership concentration

Ownership concentration is measured by the percentage of total shareholders held by the outside large shareholder. The result of the calculation is shown on Table of the calculation of measuring variables (see **Appendix II**).

### 4.1.3.4 Measurement of Firm Size

The firm size as control variable is measured by the Logarithm of total sales. Larger firms can be easily accessed to capital market, meaning that Total Sales as an indicator of firms because the higher the sales level of those firms, so larger those firms.

**Log Total sales**

The result of the calculation is shown on **Table of the Calculation of Measuring Variables** (see **Appendix II**).

### 4.1.3.5 Measurement of Size of Board of Director

The size of board of directors is measured by the number of board of members which is as the mechanism in reducing agency costs (Li and Ciu, 2003).

The result of the calculation is shown on **Table of the Calculation of Measuring Variables** (see **Appendix II**).

### 4.1.4 Test of Hypothesis

### 4.1.4.1 Regression Analysis

Multiple regression analysis is an instrument to measure the influence of independent variables in this research. Because there is heteroscedasticity problem on sample of data, the researcher will correct the data using *Newey West Least Square Method* on **Table 4.5** to solve that problem. Eviews 4 software is used in this research to test the regression.

**Table 4.5**

**The Result of Estimation of Regression by using Newey-West LS**

Dependent Variable: AU
Method: Least Squares
Sample: 1 452
Included observations: 452
Newey-West HAC Standard Errors & Covariance (lag truncation=5)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C | -80.98232 | 37.33058 | -2.169329 | 0.0306 |
| CS | 1.339952 | 0.878496 | 1.525280 | 0.1279 |
| OC | 0.538283 | 0.186954 | 2.879234 | 0.0042 |
| FS | 10.65853 | 7.463234 | 1.428138 | 0.1540 |
| BS | 0.094281 | 1.690263 | 0.055779 | 0.9555 |

| | | | |
|---|---|---|---|
| R-squared | 0.263207 | Mean dependent var | 106.942 |
| Adjusted R-squared | 0.256614 | S.D. dependent var | 85.8253 |
| S.E. of regression | 73.99882 | Akaike info criterion | 11.4568 |
| Sum squared resid | 2447694. | Schwarz criterion | 11.5028 |
| Log likelihood | -2584.277 | F-statistic | 39.9209 |
| Durbin-Watson stat | 1.994662 | Prob(F-statistic) | 0.00000 |

Based on **Table 4.5**, the equivalent which is gathered from multiple regression analysis is:

**AC = -80.98232 + 1.339952CS + 0.538283OC + 10.65853FS + 0.094281BS**

The explanation is as follows:

1) Regression coefficient $\beta_1$ that equals to 1.339952 shows that capital structure has influence on agency cost. The result of regression analysis is appropriate with expected hypothesis, so $H_a$ is accepted. Capital structure gives positive influence to agency costs. It means that the firms with higher debt to asset ratio are more efficient in their asset utilization. Meanwhile, the firms with lower debt to asset ratio have less efficient in their asset utilization.

2) Regression coefficient $\beta_2$ equals to 0.538283 shows the ownership concentration display positive influence on agency cost. This result proves the truth of hypothesis formulation, that ownership concentration has influence on agency cost, so the alternate hypothesis is accepted.

3) Regression coefficient $\beta_3$ that equals to 10.65853 shows that the influence of firm size to agency cost is positive. It means that the firms with higher firm size has higher agency cost. Meanwhile, the firms with lower firm size has lower agency cost.

4) Regression coefficient $\beta_4$ that equals to 0.094281 shows that the influence of size of board director to agency cost is positive. It means that the firms with higher size of board director has higher agency cost. Meanwhile, the firms with lower size of board size has lower agency cost.

### 4.1.4.2 Determination of Coefficient (R²)

The proportion of independent variables in explaining the dependent variable comprehensively is shown by determination of coefficient ($R^2$). R-squared has range from 0 until 1. The higher $R^2$ (resemble to 1), the better the result for its regression model and the higher ability of independent variables in explaining the dependent variable. If the $R^2$ is more resemble to 0, so the entire independent variables cannot explain the dependent variable. Basd on Table 4.5, the value of $R^2$ is 0.26307. it means that the effectiveness influence of independent variables; CS(capital structure), OC(ownership concentration), FS (firm size) and BS (size of board director) are only 26.31 %, while the rest 73.69 % will be explained by other factor or independent variable which is not tested in this research.

### 4.1.4.3 Partially Test (t-Test)

To know whether each independent variable has significant influence partially to dependent variable or not, t-Test is applied. This hypothesis testing is:

$H_o$ : $\beta_1 = 0$, Capital structure has no significant influence on agency costs

$\beta_2 = 0$, Ownership concentration has no significant influence on agency costs

$\beta_3 = 0$, Firm size does not have significant influence on agency costs

$\beta_4 = 0$, Size of board of director does not have significant influence on agency costs

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$H_a$ : $\beta_1 \neq 0$, Capital structure has significant influence on agency costs

$\beta_2 \neq 0$, Ownership concentration has significant influence on agency costs

$\beta_3 \neq 0$, Firm size has significant influence on agency costs

$\beta_4 \neq 0$, Size of board of director has significant influence on agency costs

Hypothesis testing is executed by observing the calculation of t-statistic (output from EViews 4) and comparing with t value from table. The decision whether accepting or rejecting alternate hypothesis is as follows:

- If t-stat > t-table, $H_a$ is accepted
- If t-stat < t-table, $H_a$ is rejected

1) Capital structure

The value of t- table for $\alpha = 5$ % with df = 447 is 1.960, where df = n-k, where n= the number of observations (452) and k = the number of independent variables included coefficient (5). From the **Table 4.5** it shows that t-stat 1.525280 is lower than t-table 1.960, so the decision is rejected $H_a$, in other word the capital structure does not have significant influence on agency cost.

2) Ownership concentration

The value of t- table for $\alpha = 5$ % with df = 447 is 1.960, where df = n-k, where n= the number of observations (452) and k = the number of independent variables included coefficient (5). As shown on **Table 4.5**, t-stat 2.879234 is better than t-

table 1.960, the result shows that the ownership concentration influences significantly to agency costs. It means that $H_a$ is accepted.

3)  Firm Size

The value of t- table for $\alpha$ = 5 % with df = 447 is 1.960, where df = n-k, where n= the number of observations (452) and k = the number of independent variables included coefficient (5). As shown on **Table 4.5**, t-stat 1.428138 is lower than t-table 1.960, so it rejects the alternate hypothesis, in other word the firm size does not have significant influence on agency cost.

4)  Size of Board of Director

The value of t- table for $\alpha$ = 5 % with df = 447 is 1.960, where df = n-k, where n= the number of observations (452) and k = the number of independent variables included coefficient (5). As shown on **Table 4.5**, t-stat 0.055779 is lower than t-table 1.960, and the size of board of director does not have significant influence to the agency cost, so the alternate hypothesis is rejected.

**4.1.4.4 Simultaneously Test (F- test)**

To know whether each independent variable has significant influence simultaneously toward dependent variable or not, it uses t-Test. This hypothesis testing is:

$H_o$: $\beta_1=\beta_2=\beta_3=\beta_4=0$, Capital structure, ownership concentration, firm size and size of board of director do not have significant influence to agency costs

$H_a$: $\beta_1\neq\beta_2\neq\beta_3\neq\beta_4\neq0$, Capital structure, ownership concentration, firm size and size of board of director have significant influence to agency costs

Hypothesis testing is executed by observing the calculation of F-statistic (output from EViews 4) and comparing with F value from table. The decision accepts or rejects the alternate hypothesis as follows:

- If F-stat > F table, $H_a$ is accepted

- If F-stat < F table, $H_a$ is rejected

Based on **Table 4.5,** the value of F-Statistic = 39.9209 with df numerator $(k-1) = (4-1) = 3$ and df denominator $(n-2) = (452-2) = 450$, F-table = 2.60. Since the F-stat is better than F-table, Ha is accepted. It means that capital structure, ownership concentration, firm size and size of board of director has simultaneously influence to the agency costs, as the dependent variable.

## 4.2 Research Implications

This research gives the implications that capital structure has positive influence on agency costs, but not significant in statistic. It is contradictory with Li

and Ciu (2003) and Ang, Cole, and Lin (2000) findings that show positive and significant relation between capital structure and agency costs, as stated that high debt to asset ratio can reduce the agency costs. It is because the sample of this research excludes the financial firms, meanwhile based on their findings the financial firms are included.

The ownership concentration has positive significant influence to agency costs, at 5 % significance level. Meaning that the firms with the largest shareholders have a strong interest in the firm performance in improving their asset utilization and therefore a high ability to reduce agency cost. The highly concentrated ownership would benefit the operation of the business. This finding is supportive of version of Li and Ciu (2003).

For control variables, both firm size and size of board of director is positive but not significant. The insignificant influence of firm size to agency costs is not appropriate with Li and Ciu (2003) who state that large firms can reduce the agency cost. However this research result is appropriate with Himmelberg, Hubbard, and Palia (1999) in Kumar's finding that the larger firms can be less efficient than the smaller ones because of the loss of control by top managers over strategic and operational activities within the firm. The insignificant influence is also found in size of board of director to agency costs. It is because the size of board of director is not a good mechanism for reducing agency costs in Indonesian firms.

# CHAPTER V

# CONCLUSION AND RECOMMENDATION

## 5.1 Conclusion

This research examines whether capital structure and ownership concentration have influence on agency costs or not in manufacturing industries listed in Jakarta Stock Exchange (JSX) during the period of 2001 until 2004. Then, this research finds that capital structure has positive influence on agency costs , but not significant. It is contradictory with Li and Ciu (2003) and Ang, Cole, and Lin (2000) findings that show positive and significant relation between capital structure and agency costs, as stated that high debt to asset ratio can reduce the agency costs. It is because the sample of this research excludes the financial firms, whereas based on their findings the financial firms are included.

Meanwhile, the ownership concentration has positive significant influence to agency costs, at 5 % significant level. Meaning that the firms with the largest shareholders have the strong interest in firm's performance in improving their asset utilization and therefore have a high ability to reduce the agency cost. The highly concentrated ownership would benefit the operation of the business. This finding is supportive of a research done by Li and Ciu (2003).

Based on the research findings, there is small R-squared ($R^2$) that is 26.307. This result shows only 26.31 % independent variables influence the agency costs. It is because there are some independent variables which do not effective in

mitigating the agency costs in companies in Indonesia. Therefore, this research is not proper implemented in Indonesian listed firms.

## 5.2 Recommendation

Some recommendations for further research are as follows:

a. It is suggested to include the financial firms for the research sample, but it has to include all the listed companies in Jakarta Stock Exchange.

b. It should be better to add the independent variables in order to identify what factors that can also give the impact to the agency costs.

c. This research can be a reference and can be developed in order to minimize the weaknesses of this research.
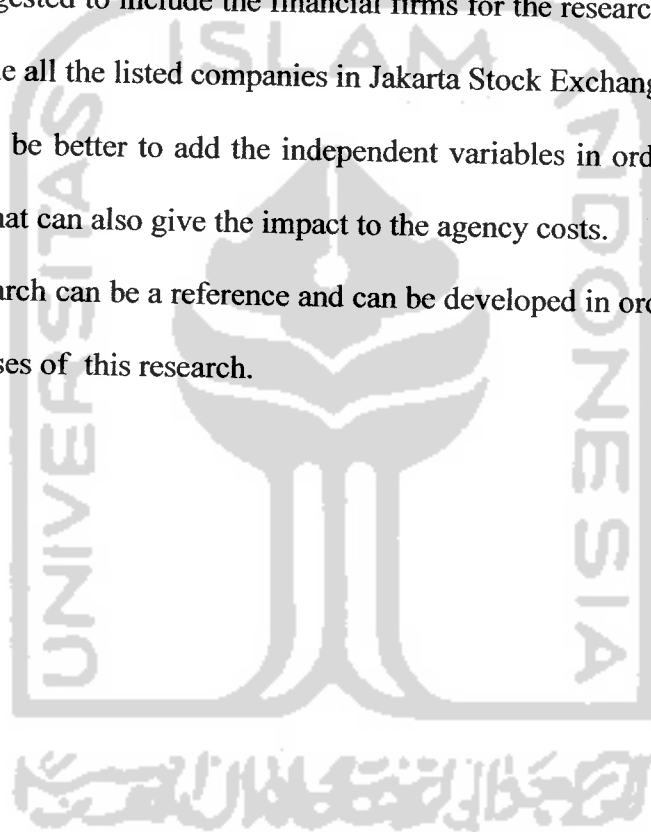
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# APPENDICES

# APPENDIX I :

## LIST OF SAMPLE COMPANY (113 FIRMS)

| No | Name of Firms | Code |
|----|---------------|------|
| 1 | PT. Andhi Candra Automotive Products Tbk | ACAP |
| 2 | PT. Ades Waters Indonesia Tbk | ADES |
| 3 | PT. AKR Corporindo Tbk ( d/h Aneka Kimia Raya Tbk) | AKRA |
| 4 | PT. Alumindo Light Metal Industry Tbk | ALMI |
| 5 | PT. Asahimas Flat Glass Tbk | AMFG |
| 6 | PT. Asiaplast Industries Tbk | APLI |
| 7 | PT. Aqua Golden Tbk | AQUA |
| 8 | PT. Arwana Citra Mulia Tbk | ARNA |
| 9 | PT. Astra Graphia Tbk | ASGR |
| 10 | PT. Astra International Tbk | ASII |
| 11 | PT. Astra Otoparts Tbk | AUTO |
| 12 | PT. Sepatu Bata Tbk | BATA |
| 13 | PT. BAT Tbk | BATI |
| 14 | PT. Branta Mulia Tbk | BRAM |
| 15 | PT. Berliana Tbk | BRNA |
| 16 | PT. Bentojaya Manunggal Tbk | BTON |
| 17 | PT. Budi Acid Jaya Tbk | BUDI |
| 18 | PT. Cahaya Kalbar Tbk | CEKA |
| 19 | PT. Colorpak Indonesia Tbk | CLPI |
| 20 | PT. Citra Tubindo Tbk | CTBN |
| 21 | PT. Davomas Tbk | DAVO |
| 22 | PT. Delta Tbk | DLTA |
| 23 | PT. Dankos Laboratories Tbk | DNKS |
| 24 | PT. Duta Pertiwi Nusantara Tbk | DPNS |
| 25 | PT. Daya Sakti Unggul Corporation Tbk | DSUC |
| 26 | PT. Darya, Varia Laboratoria Tbk | DVLA |
| 27 | PT. Dynaplast Tbk | DYNA |
| 28 | PT. Ekadharma Tape Industries Tbk | EKAD |
| 29 | PT. Ever Shine Textile Industry Tbk | ESTI |
| 30 | PT. Fast Food Indonesia Tbk | FAST |
| 31 | PT. Fajar Surya Wisesa Tbk | FASW |
| 32 | PT. Fortune Mate Indonesia Tbk | FMII |
| 33 | PT. Fatrapolindo Nusa Industri tbk | FPNI |
| 34 | PT. Goodyear Indonesia tbk | GDYR |
| 35 | PT. Gudang Garam Tbk | GGRM |
| 36 | PT. Panasia Indosyntec Tbk | HDTX |
| 37 | PT. Hexindo Adiperkasa Tbk | HEXA |

| 38 | PT. HM Sampoerna Tbk | HMSP |
|----|---------------------|------|
| 39 | PT. Kageo Igar Jaya Tbk<br>(d/h Igar Jaya Tbk) | IGAR |
| 40 | PT. Sumi Indo Kabel Tbk<br>(d/h PT. IKI Indah Kabel Tbk) | IKBI |
| 41 | PT. Indofarma (Persero) Tbk | INAF |
| 42 | PT. Indal Akumunium Industry Tbk | INAI |
| 43 | PT. Intanwijaya International Tbk<br>(d/h PT. Intanwijaya Chemical Industry Tbk) | INCI |
| 44 | PT. Indofood Tbk | INDF |
| 45 | PT. Indo Rama Synthesis Tbk | INDR |
| 46 | PT. Indospring Tbk | INDS |
| 47 | PT. Indah Kiat Pulp and Paper Tbk | INKP |
| 48 | PT. Intraco Penta Tbk | INTA |
| 49 | PT. Indocement Tunggal Prakasa Tbk | INTP |
| 50 | PT. Jembo Cable Company Tbk | JECC |
| 51 | PT. Jaya Pari Steel Tbk | JPRS |
| 52 | PT. Kimia Farma (Persero) Tbk | KAEF |
| 53 | PT. Karwell Indonesia Tbk | KARW |
| 54 | PT. Kabelindo Murni Tbk | KBLM |
| 55 | PT. Kedawung Setia Industrial Tbk | KDSI |
| 56 | PT. Kedaung Indah can Tbk | KICI |
| 57 | PT. Resources Alam Indonesia Tbk<br>(d/h PT. Kurnia Kapuas Utama Glue Industries Tbk) | KKGI |
| 58 | PT. Kalbe Farma Tbk | KLBF |
| 59 | PT. Kamatsu Indonesia Tbk | KOMI |
| 60 | PT. Perdana Bangun Persada Tbk | KONI |
| 61 | PT. Lapindo Internasional Tbk | LAPD |
| 62 | PT. Lions Metal Works Tbk | LION |
| 63 | PT. Langgeng Makmur Industry Tbk | LMPI |
| 64 | PT. Lion Mesh Prima Tbk | LMSH |
| 65 | PT. Multi Prima Sejahtera Tbk<br>(d/h PT. Lippo Enterprises Tbk) | LIPIN |
| 66 | PT. Lautan Luas Tbk | LTLS |
| 67 | PT. Modern Photo Film Company Tbk. | MDRN |
| 68 | PT. Merck Tbk<br>(d/h PT. Merck Indonesia Tbk) | MERK |
| 69 | PT. Multi Bintang Indonesia Tbk | MLBI |
| 70 | PT. Multipolar corporation Tbk | MLPL |
| 71 | PT. Mustika Ratu Tbk | MRAT |
| 72 | PT. Metrodata elektronics Tbk | MTDL |
| 73 | PT. Mayora Indah Tbk | MYOR |
| 74 | PT. Nipress Tbk | NIPS |

| 75 | PT. Panansia Fillament Inti Tbk | PAFI |
|-----|---------------------------------------------------|------|
| 76 | PT. Pan Brothers Textile Tbk | PBRX |
| 77 | PT. Prima Alloy Steel tbk | PRAS |
| 78 | PT. Pyridam Farma Tbk | PYFA |
| 79 | PT. Roda Vivatex Tbk | RDTX |
| 80 | PT. Ricky Putra Globalindo Tbk | RICY |
| 81 | PT. Ryane Adibusana Tbk | RYAN |
| 82 | PT. Supreme Cable Manufacturing Corporation Tbk (SUCACO) | SCCO |
| 83 | PT. Schering-plough Indonesia Tbk | SCPI |
| 84 | PT. Sari Husada Tbk | SHDA |
| 85 | PT. Siwani makmur Tbk (d/h PT. Vander Horst Indonesia) | SIMA |
| 86 | PT. Suryo Intrindo Makmur Tbk | SIMM |
| 87 | PT. Sierad Produce Tbk | SIPD |
| 88 | PT. Semen Cibinong Tbk | SMCB |
| 89 | PT. Semen Gresik (Persero) Tbk | SMGR |
| 90 | PT. Summitplast Tbk | SMPL |
| 91 | PT.Selamat Sempurna Tbk | SMSM |
| 92 | PT. Sorini Corporation Tbk | SOBI |
| 93 | PT. Suparma Tbk | SPMA |
| 94 | PT. Bristol-Myers Squibb Indonesia Tbk | SQBI |
| 95 | PT. Sarasa Nugraha Tbk | SRSN |
| 96 | PT. Sunson Textile Manufacturer Tbk | SSTM |
| 97 | PT. Siantar Top Tbk | STTP |
| 98 | PT. Suba Indah Tbk | SUBA |
| 99 | PT. Sugi Samapersada Tbk | SUGI |
| 100 | PT. Tembaga Mulia Semanan Tbk | TBMS |
| 101 | PT. Mandom Indonesia Tbk | TCID |
| 102 | PT. Tifico Tbk | TFCO |
| 103 | PT. Tira Austenite Tbk | TIRA |
| 104 | PT. Tirta Mahakam Resources Tbk | TIRT |
| 105 | PT. Pabrik Kertas Tjiwi Kimia Tbk | TKIM |
| 106 | PT. Surya Toto Indonesia Tbk | TOTO |
| 107 | PT. Trias Sentosa Tbk | TRST |
| 108 | PT. Tempo Scan Pacific Tbk | TSPC |
| 109 | PT. Tunas Ridean Tbk | TURI |
| 110 | PT. Ultrajaya Tbk | ULTJ |
| 111 | PT. Unggul Indah Cahaya Tbk | UNIC |
| 112 | PT. United Tractors Tbk | UNTR |
| 113 | PT. Unilever Indonesia Tbk | UNVR |

# APPENDIX II:

# THE CALCULATION OF MEASUREMENT VARIABLES

2001

| CODE | AU | CS | OC | FS | BS |
|------|------|------|------|------|------|
| ACAP | 111.98 | 11.31 | 64.93 | 8.19 | 4 |
| ADES | 59.42 | 61.67 | 28.13 | 8.09 | 3 |
| AKRA | 233.27 | 38.45 | 73.35 | 9.16 | 3 |
| ALMI | 109.58 | 62.92 | 36.59 | 9.06 | 5 |
| AMFG | 74.55 | 67.12 | 43.50 | 9.09 | 11 |
| APLI | 67.16 | 32.35 | 57.69 | 8.20 | 4 |
| AQUA | 154.53 | 66.75 | 75.35 | 8.90 | 3 |
| ARNA | 52.21 | 69.14 | 45.41 | 8.06 | 3 |
| ASGR | 85.20 | 70.87 | 79.09 | 8.85 | 4 |
| ASII | 110.02 | 47.81 | 30.69 | 10.47 | 9 |
| AUTO | 118.64 | 47.14 | 87.31 | 9.32 | 6 |
| BATA | 182.69 | 36.42 | 65.00 | 8.61 | 7 |
| BATI | 97.69 | 44.29 | 71.00 | 8.85 | 5 |
| BRAM | 73.77 | 69.47 | 19.78 | 9.13 | 10 |
| BRNA | 100.00 | 40.09 | 51.42 | 8.33 | 3 |
| BTON | 55.53 | 39.67 | 54.30 | 7.26 | 4 |
| BUDI | 82.12 | 84.46 | 23.15 | 8.92 | 6 |
| CEKA | 49.00 | 27.47 | 50.08 | 8.17 | 4 |
| CLPI | 120.08 | 19.77 | 59.00 | 7.77 | 4 |
| CTBN | 39.67 | 8.60 | 30.16 | 8.61 | 5 |
| DAVO | 66.41 | 39.17 | 24.30 | 8.71 | 3 |
| DLTA | 88.36 | 25.72 | 58.30 | 8.49 | 3 |
| DNKS | 134.27 | 63.59 | 71.46 | 8.88 | 4 |
| DPNS | 60.15 | 15.13 | 49.67 | 7.90 | 3 |
| DSUC | 154.71 | 78.83 | 59.39 | 8.78 | 3 |
| DVLA | 134.58 | 57.01 | 89.50 | 8.71 | 5 |
| DYNA | 75.65 | 43.82 | 17.83 | 8.56 | 3 |
| EKAD | 134.56 | 21.50 | 72.82 | 7.90 | 3 |
| ESTI | 71.48 | 47.17 | 52.06 | 8.72 | 3 |
| FAST | 282.46 | 50.54 | 44.00 | 8.77 | 5 |
| FASW | 41.84 | 41.92 | 52.40 | 9.07 | 5 |
| FMII | 95.28 | 26.10 | 58.00 | 7.64 | 2 |
| FPNI | 91.29 | 91.29 | 20.48 | 8.32 | 4 |
| GDYR | 152.03 | 33.67 | 85.00 | 8.77 | 3 |
| GGRM | 133.63 | 39.04 | 66.80 | 10.25 | 10 |

| | | | | | |
|------|--------|-------|-------|-------|---|
| HDTX | 45.17 | 78.14 | 55.00 | 9.02 | 4 |
| HEXA | 85.90 | 72.98 | 48.59 | 8.69 | 7 |
| HMSP | 148.53 | 53.64 | 26.86 | 10.15 | 5 |
| IGAR | 131.51 | 53.46 | 51.13 | 8.52 | 3 |
| IKBI | 178.37 | 16.84 | 88.06 | 8.85 | 5 |
| INAF | 75.83 | 36.25 | 80.73 | 8.79 | 5 |
| INAI | 130.57 | 63.23 | 32.93 | 8.54 | 5 |
| INCI | 61.85 | 13.74 | 68.73 | 8.00 | 3 |
| INDF | 112.83 | 66.71 | 48.00 | 10.17 | 9 |
| INDR | 58.30 | 59.32 | 37.82 | 9.52 | 4 |
| INDS | 69.15 | 50.48 | 87.46 | 8.28 | 3 |
| INKP | 19.64 | 60.85 | 52.46 | 10.06 | 8 |
| INTA | 68.07 | 84.09 | 36.58 | 8.69 | 4 |
| INTP | 29.01 | 77.01 | 61.70 | 9.54 | 9 |
| JECC | 96.87 | 79.79 | 52.57 | 8.46 | 6 |
| JPRS | 100.97 | 44.93 | 19.94 | 7.98 | 4 |
| KAEF | 122.44 | 39.08 | 90.03 | 9.15 | 5 |
| KARW | 169.59 | 84.42 | 53.23 | 8.93 | 6 |
| KBLM | 23.45 | 16.40 | 15.33 | 7.80 | 3 |
| KDSI | 106.29 | 69.01 | 66.11 | 8.64 | 3 |
| KICI | 54.24 | 37.94 | 42.25 | 8.07 | 3 |
| KKGI | 66.32 | 49.32 | 22.70 | 8.27 | 4 |
| KLBF | 109.01 | 81.57 | 52.30 | 9.31 | 6 |
| KOMI | 99.39 | 10.33 | 55.13 | 8.79 | 8 |
| KONI | 74.52 | 51.33 | 64.16 | 7.70 | 3 |
| LAPD | 64.15 | 31.12 | 71.63 | 7.32 | 3 |
| LION | 66.77 | 14.33 | 28.85 | 7.82 | 4 |
| LMPI | 40.47 | 86.52 | 51.77 | 8.33 | 4 |
| LMSH | 128.95 | 75.12 | 25.55 | 7.70 | 3 |
| LIPIN | 57.50 | 80.01 | 25.00 | 7.58 | 3 |
| LTLS | 136.27 | 46.67 | 63.03 | 9.02 | 6 |
| MDRN | 199.55 | 79.26 | 41.15 | 9.28 | 3 |
| MERK | 137.71 | 21.65 | 74.00 | 8.35 | 6 |
| MLBI | 110.07 | 43.62 | 75.94 | 8.76 | 7 |
| MLPL | 35.86 | 36.38 | 50.13 | 8.76 | 5 |
| MRAT | 77.36 | 15.58 | 70.93 | 8.36 | 4 |
| MTDL | 211.92 | 45.36 | 13.26 | 9.06 | 3 |
| MYOR | 62.94 | 51.94 | 32.93 | 8.92 | 3 |
| NIPS | 91.40 | 96.25 | 37.11 | 8.00 | 4 |
| PAFI | 71.94 | 89.61 | 80.00 | 8.82 | 3 |
| PBRX | 181.66 | 58.50 | 21.00 | 8.46 | 4 |
| PRAS | 34.03 | 94.83 | 70.00 | 8.25 | 4 |
| PYFA | 34.21 | 21.06 | 53.85 | 7.42 | 3 |
| RDTX | 70.85 | 14.00 | 41.93 | 8.33 | 4 |

| | | | | |
|---|---|---|---|---|
| RICY | 93.54 | 93.54 | 34.44 | 8.44 | 4 |
| RYAN | 61.07 | 11.43 | 67.64 | 7.63 | 3 |
| SCCO | 134.83 | 58.59 | 29.67 | 8.81 | 4 |
| SCPI | 163.07 | 93.20 | 64.60 | 8.01 | 5 |
| SHDA | 117.13 | 14.63 | 80.85 | 8.97 | 7 |
| SIMA | 96.95 | 16.05 | 27.54 | 7.88 | 5 |
| SIMM | 83.10 | 40.69 | 68.60 | 8.33 | 3 |
| SIPD | 99.50 | 97.02 | 2.76 | 9.12 | 4 |
| SMCB | 30.22 | 99.90 | 77.33 | 9.26 | 8 |
| SMGR | 53.17 | 63.42 | 51.01 | 9.67 | 6 |
| SMPL | 72.61 | 44.61 | 28.52 | 8.17 | 5 |
| SMSM | 99.66 | 31.03 | 68.02 | 8.75 | 4 |
| SOBI | 88.89 | 56.74 | 58.24 | 8.73 | 4 |
| SPMA | 43.87 | 74.15 | 44.73 | 8.66 | 3 |
| SQBI | 158.27 | 37.60 | 68.00 | 8.24 | 4 |
| SRSN | 176.49 | 47.74 | 77.28 | 8.51 | 4 |
| SSTM | 72.05 | 68.09 | 57.37 | 8.77 | 3 |
| STTP | 128.31 | 40.84 | 60.39 | 8.71 | 3 |
| SUBA | 18.78 | 29.05 | 15.01 | 8.14 | 4 |
| SUGI | 118.39 | 41.30 | 68.75 | 7.80 | 2 |
| TBMS | 167.76 | 85.56 | 35.93 | 9.02 | 5 |
| TCID | 147.56 | 2.01 | 60.12 | 8.72 | 10 |
| TFCO | 67.97 | 60.05 | 93.30 | 9.25 | 7 |
| TIRA | 96.72 | 40.21 | 44.64 | 8.02 | 3 |
| TIRT | 114.14 | 63.93 | 35.28 | 8.58 | 5 |
| TKIM | 32.70 | 77.23 | 63.30 | 9.87 | 7 |
| TOTO | 79.46 | 92.65 | 38.80 | 8.62 | 7 |
| TRST | 49.78 | 73.99 | 23.37 | 8.88 | 3 |
| TSPC | 107.29 | 19.83 | 66.02 | 9.25 | 11 |
| TURI | 211.21 | 67.41 | 47.47 | 9.37 | 5 |
| ULTJ | 49.29 | 47.73 | 26.11 | 8.68 | 3 |
| UNIC | 85.02 | 63.63 | 46.65 | 9.27 | 5 |
| UNTR | 109.19 | 40.31 | 50.00 | 9.85 | 4 |
| UNVR | 224.18 | 35.31 | 85.00 | 9.78 | 11 |

**2002**

| CODE | AU | CS | OC | FS | BS |
|---|---|---|---|---|---|
| ACAP | 92.74 | 14.05 | 64.93 | 8.11 | 4 |
| ADES | 71.75 | 58.01 | 28.13 | 8.17 | 3 |
| AKRA | 209.57 | 29.13 | 73.35 | 9.11 | 4 |
| ALMI | 98.69 | 62.88 | 36.59 | 8.98 | 5 |

| | | | | |
|---|---|---|---|---|
| AMFG | 86.02 | 51.61 | 43.71 | 9.11 | 11 |
| APLI | 63.04 | 48.16 | 46.16 | 8.25 | 4 |
| AQUA | 187.37 | 58.43 | 90.99 | 9.01 | 3 |
| ARNA | 66.97 | 53.72 | 27.52 | 8.22 | 3 |
| ASGR | 114.75 | 55.87 | 78.89 | 8.92 | 4 |
| ASII | 289.12 | 164.91 | 31.15 | 10.48 | 7 |
| AUTO | 112.67 | 36.25 | 87.31 | 9.31 | 6 |
| BATA | 195.65 | 29.00 | 65.00 | 8.61 | 7 |
| BATI | 228.26 | 41.21 | 71.00 | 9.20 | 4 |
| BRAM | 79.46 | 59.92 | 19.78 | 9.12 | 10 |
| BRNA | 87.12 | 37.72 | 51.42 | 8.35 | 3 |
| BTON | 81.37 | 13.28 | 54.30 | 7.31 | 3 |
| BUDI | 82.84 | 85.06 | 23.15 | 8.89 | 6 |
| CEKA | 57.57 | 23.38 | 50.08 | 8.24 | 4 |
| CLPI | 93.87 | 15.76 | 59.00 | 7.70 | 4 |
| CTBN | 56.30 | 19.72 | 27.66 | 8.57 | 5 |
| DAVO | 75.84 | 37.03 | 23.17 | 8.78 | 3 |
| DLTA | 133.30 | 22.07 | 58.30 | 8.70 | 3 |
| DNKS | 161.20 | 57.09 | 71.46 | 9.03 | 4 |
| DPNS | 46.42 | 11.68 | 49.67 | 7.77 | 3 |
| DSUC | 138.49 | 71.90 | 59.39 | 8.73 | 3 |
| DVLA | 170.02 | 29.68 | 89.50 | 8.74 | 3 |
| DYNA | 84.70 | 34.73 | 24.73 | 8.65 | 3 |
| EKAD | 130.81 | 16.73 | 72.82 | 7.88 | 3 |
| ESTI | 62.84 | 41.52 | 52.06 | 8.62 | 3 |
| FAST | 292.67 | 44.05 | 44.00 | 8.85 | 6 |
| FASW | 43.15 | 62.74 | 52.40 | 9.07 | 5 |
| FMII | 95.08 | 22.05 | 31.86 | 7.87 | 2 |
| FPNI | 90.01 | 27.77 | 17.14 | 8.34 | 4 |
| GDYR | 146.09 | 29.90 | 85.00 | 8.75 | 3 |
| GGRM | 135.50 | 37.16 | 66.80 | 10.32 | 10 |
| HDTX | 57.91 | 72.10 | 55.00 | 9.07 | 4 |
| HEXA | 79.51 | 72.18 | 48.59 | 8.71 | 7 |
| HMSP | 1541.06 | 450.44 | 30.65 | 10.18 | 6 |
| IGAR | 164.40 | 41.30 | 51.13 | 8.59 | 3 |
| IKBI | 138.50 | 21.14 | 88.06 | 8.75 | 5 |
| INAF | 84.93 | 50.87 | 80.66 | 8.84 | 5 |
| INAI | 95.59 | 67.19 | 32.93 | 8.46 | 5 |
| INCI | 51.79 | 15.49 | 68.73 | 7.93 | 3 |
| INDF | 107.96 | 70.24 | 46.83 | 10.22 | 9 |
| INDR | 58.60 | 58.29 | 37.82 | 9.45 | 4 |
| INDS | 74.33 | 74.39 | 87.46 | 8.33 | 3 |
| INKP | 21.63 | 65.19 | 52.46 | 10.03 | 8 |
| INTA | 19.06 | 80.94 | 36.58 | 8.11 | 4 |

| | | | | |
|---|---|---|---|---|---|
| INTP | 34.44 | 66.78 | 61.70 | 9.60 | 9 |
| JECC | 84.89 | 78.61 | 52.57 | 8.41 | 6 |
| JPRS | 132.18 | 31.24 | 19.94 | 8.40 | 4 |
| KAEF | 148.16 | 34.78 | 90.02 | 9.19 | 5 |
| KARW | 109.92 | 85.89 | 53.23 | 8.73 | 6 |
| KBLM | 38.79 | 18.51 | 15.33 | 7.94 | 3 |
| KDSI | 124.91 | 69.81 | 66.11 | 8.71 | 3 |
| KICI | 74.29 | 36.64 | 42.25 | 8.18 | 3 |
| KKGI | 63.73 | 48.09 | 18.77 | 8.24 | 4 |
| KLBF | 127.10 | 67.68 | 52.30 | 9.41 | 6 |
| KOMI | 107.77 | 10.74 | 55.13 | 8.85 | 10 |
| KONI | 84.74 | 58.17 | 64.16 | 7.73 | 3 |
| LAPD | 69.52 | 30.86 | 62.41 | 7.39 | 3 |
| LION | 77.16 | 12.71 | 28.85 | 7.92 | 4 |
| LMPI | 44.36 | 89.52 | 40.41 | 8.35 | 4 |
| LMSH | 164.87 | 67.73 | 25.55 | 7.76 | 3 |
| LIPIN | 27.91 | 37.07 | 25.00 | 7.54 | 3 |
| LTLS | 123.42 | 50.76 | 63.03 | 9.05 | 6 |
| MDRN | 182.43 | 78.21 | 41.12 | 9.27 | 3 |
| MERK | 128.19 | 13.40 | 74.00 | 8.34 | 6 |
| MLBI | 114.18 | 40.44 | 75.94 | 8.73 | 7 |
| MLPL | 28.29 | 40.94 | 50.13 | 8.70 | 5 |
| MRAT | 86.77 | 17.62 | 71.26 | 8.40 | 4 |
| MTDL | 219.86 | 45.35 | 13.07 | 9.00 | 3 |
| MYOR | 74.95 | 43.41 | 32.93 | 9.00 | 3 |
| NIPS | 117.14 | 88.48 | 37.11 | 8.09 | 4 |
| PAFI | 71.72 | 83.82 | 80.00 | 8.75 | 3 |
| PBRX | 213.09 | 44.86 | 21.00 | 8.48 | 4 |
| PRAS | 63.50 | 83.44 | 70.00 | 8.28 | 4 |
| PYFA | 35.31 | 1.38 | 53.85 | 7.39 | 3 |
| RDTX | 65.24 | 16.16 | 41.93 | 8.29 | 4 |
| RICY | 90.08 | 94.53 | 34.44 | 8.37 | 4 |
| RYAN | 52.95 | 17.93 | 50.77 | 7.61 | 3 |
| SCCO | 124.85 | 41.57 | 29.67 | 8.74 | 4 |
| SCPI | 179.45 | 94.80 | 64.60 | 8.04 | 5 |
| SHDA | 109.23 | 10.46 | 80.85 | 9.01 | 6 |
| SIMA | 86.71 | 16.03 | 27.54 | 7.84 | 5 |
| SIMM | 59.04 | 47.56 | 68.60 | 8.14 | 3 |
| SIPD | 114.47 | 93.46 | 2.76 | 9.12 | 4 |
| SMCB | 25.65 | 67.48 | 77.33 | 9.30 | 8 |
| SMGR | 74.61 | 52.11 | 51.01 | 9.71 | 6 |
| SMPL | 74.98 | 32.19 | 28.52 | 8.09 | 5 |
| SMSM | 103.38 | 29.70 | 68.02 | 8.78 | 4 |
| SOBI | 94.61 | 47.55 | 58.24 | 8.73 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| SPMA | 39.24 | 79.82 | 44.73 | 8.61 | 3 |
| SQBI | 154.59 | 33.22 | 68.00 | 8.31 | 4 |
| SRSN | 162.27 | 52.79 | 77.28 | 8.43 | 4 |
| SSTM | 62.49 | 65.38 | 57.37 | 8.71 | 3 |
| STTP | 133.44 | 42.75 | 60.39 | 8.80 | 3 |
| SUBA | 12.69 | 43.27 | 19.52 | 8.05 | 4 |
| SUGI | 111.95 | 24.74 | 68.75 | 7.81 | 2 |
| TBMS | 167.43 | 80.90 | 35.93 | 8.98 | 5 |
| TCID | 163.69 | 14.76 | 60.12 | 8.77 | 10 |
| TFCO | 68.91 | 62.52 | 93.30 | 9.20 | 7 |
| TIRA | 48.58 | 67.15 | 44.64 | 7.99 | 3 |
| TIRT | 94.21 | 64.96 | 35.28 | 8.58 | 5 |
| TKIM | 36.68 | 78.84 | 63.30 | 9.84 | 7 |
| TOTO | 75.19 | 80.52 | 38.80 | 8.62 | 7 |
| TRST | 51.34 | 59.31 | 23.37 | 8.89 | 3 |
| TSPC | 107.87 | 17.58 | 66.13 | 9.29 | 11 |
| TURI | 220.01 | 62.13 | 47.47 | 9.39 | 5 |
| ULTJ | 40.15 | 48.33 | 26.11 | 8.61 | 3 |
| UNIC | 83.04 | 57.61 | 47.12 | 9.19 | 5 |
| UNTR | 112.88 | 80.54 | 50.00 | 9.84 | 4 |
| UNVR | 226.89 | 34.04 | 85.00 | 9.85 | 11 |

**2003**

| CODE | AU | CS | OC | FS | BS |
|---|---|---|---|---|---|
| ACAP | 96.48 | 16.58 | 64.93 | 8.15 | 3 |
| ADES | 87.97 | 53.01 | 28.13 | 8.23 | 2 |
| AKRA | 118.26 | 41.43 | 73.35 | 9.27 | 4 |
| ALMI | 89.29 | 69.15 | 36.59 | 8.95 | 5 |
| AMFG | 91.31 | 42.16 | 43.71 | 9.13 | 11 |
| APLI | 0.09 | 49.99 | 46.16 | 5.44 | 4 |
| AQUA | 205.85 | 47.30 | 90.99 | 9.03 | 3 |
| ARNA | 77.89 | 47.51 | 27.52 | 8.29 | 3 |
| ASGR | 63.34 | 52.81 | 76.95 | 8.65 | 4 |
| ASII | 114.99 | 0.05 | 37.17 | 10.50 | 7 |
| AUTO | 109.92 | 31.88 | 86.68 | 9.33 | 7 |
| BATA | 175.58 | 31.79 | 65.00 | 8.61 | 6 |
| BATI | 220.66 | 34.65 | 71.00 | 9.16 | 5 |
| BRAM | 80.04 | 32.15 | 19.78 | 9.09 | 9 |
| BRNA | 100.00 | 40.09 | 51.42 | 8.33 | 3 |
| BTON | 79.04 | 7.81 | 54.30 | 7.27 | 4 |
| BUDI | 68.39 | 81.95 | 23.15 | 8.80 | 6 |
| CEKA | 61.13 | 22.56 | 50.08 | 8.26 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| CLPI | 94.70 | 19.95 | 59.00 | 7.75 | 4 |
| CTBN | 94.00 | 23.30 | 27.66 | 8.79 | 5 |
| DAVO | 95.63 | 33.94 | 23.17 | 8.93 | 3 |
| DLTA | 133.38 | 19.51 | 58.30 | 8.73 | 4 |
| DNKS | 144.09 | 51.51 | 71.46 | 9.08 | 4 |
| DPNS | 50.40 | 21.08 | 49.67 | 7.84 | 3 |
| DSUC | 122.44 | 79.27 | 59.39 | 8.70 | 4 |
| DVLA | 103.99 | 28.28 | 89.50 | 8.59 | 6 |
| DYNA | 76.84 | 44.69 | 39.76 | 8.77 | 3 |
| EKAD | 134.61 | 18.15 | 72.82 | 7.91 | 3 |
| ESTI | 65.61 | 37.34 | 52.06 | 8.58 | 3 |
| FAST | 283.45 | 40.88 | 44.00 | 8.90 | 6 |
| FASW | 45.97 | 59.58 | 52.40 | 9.08 | 4 |
| FMII | 160.58 | 15.24 | 55.56 | 8.47 | 5 |
| FPNI | 41.80 | 55.63 | 17.90 | 8.18 | 4 |
| GDYR | 150.20 | 31.86 | 85.00 | 8.77 | 3 |
| GGRM | 133.44 | 36.73 | 66.80 | 10.36 | 10 |
| HDTX | 52.51 | 85.50 | 55.00 | 8.99 | 4 |
| HEXA | 113.24 | 64.62 | 48.59 | 8.82 | 8 |
| HMSP | 143.91 | 41.16 | 32.41 | 10.17 | 5 |
| IGAR | 154.77 | 31.75 | 63.10 | 8.56 | 4 |
| IKBI | 157.49 | 16.35 | 88.06 | 8.77 | 6 |
| INAF | 79.18 | 59.39 | 80.66 | 8.70 | 5 |
| INAI | 99.04 | 81.41 | 32.93 | 8.50 | 4 |
| INCI | 87.07 | 14.28 | 20.79 | 8.17 | 3 |
| INDF | 116.74 | 68.93 | 51.53 | 10.25 | 10 |
| INDR | 66.42 | 56.99 | 37.82 | 9.48 | 4 |
| INDS | 78.99 | 73.64 | 87.46 | 8.33 | 3 |
| INKP | 28.37 | 80.38 | 52.72 | 10.06 | 8 |
| INTA | 61.80 | 79.93 | 37.82 | 8.60 | 4 |
| INTP | 40.98 | 55.31 | 65.14 | 9.62 | 8 |
| JECC | 101.45 | 77.02 | 52.57 | 8.45 | 7 |
| JPRS | 189.41 | 48.28 | 19.94 | 8.39 | 4 |
| KAEF | 132.76 | 44.89 | 90.02 | 9.26 | 5 |
| KARW | 127.18 | 89.61 | 53.23 | 8.72 | 6 |
| KBLM | 44.57 | 33.94 | 15.33 | 7.96 | 3 |
| KDSI | 133.99 | 71.82 | 66.11 | 8.70 | 3 |
| KICI | 47.49 | 36.76 | 42.25 | 7.93 | 3 |
| KKGI | 67.81 | 38.56 | 18.77 | 8.19 | 4 |
| KLBF | 118.00 | 58.20 | 52.30 | 9.46 | 6 |
| KOMI | 79.67 | 14.57 | 55.13 | 8.75 | 10 |
| KONI | 94.81 | 57.98 | 64.16 | 7.76 | 3 |
| LAPD | 150.47 | 35.97 | 62.36 | 7.77 | 3 |
| LION | 72.95 | 15.74 | 28.85 | 7.94 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| LMPI | 48.76 | 97.47 | 40.41 | 8.39 | 4 |
| LMSH | 190.58 | 64.25 | 25.55 | 7.81 | 3 |
| LIPIN | 23.41 | 37.00 | 25.00 | 7.46 | 3 |
| LTLS | 102.42 | 63.14 | 63.03 | 9.10 | 9 |
| MDRN | 162.20 | 79.05 | 41.12 | 9.23 | 3 |
| MERK | 147.92 | 20.38 | 74.00 | 8.47 | 6 |
| MLBI | 116.53 | 44.45 | 75.94 | 8.75 | 7 |
| MLPL | 37.88 | 42.37 | 50.13 | 8.77 | 6 |
| MRAT | 83.50 | 15.57 | 71.26 | 8.36 | 4 |
| MTDL | 208.75 | 44.40 | 13.07 | 8.98 | 3 |
| MYOR | 85.92 | 36.43 | 32.93 | 9.04 | 3 |
| NIPS | 71.18 | 51.41 | 37.11 | 8.09 | 4 |
| PAFI | 51.78 | 88.32 | 80.00 | 8.57 | 3 |
| PBRX | 235.30 | 33.99 | 21.00 | 8.42 | 4 |
| PRAS | 106.13 | 69.05 | 45.24 | 8.59 | 4 |
| PYFA | 39.93 | 11.07 | 53.85 | 7.44 | 2 |
| RDTX | 57.67 | 16.35 | 40.39 | 8.25 | 4 |
| RICY | 78.70 | 93.40 | 34.44 | 8.32 | 4 |
| RYAN | 48.92 | 22.91 | 26.99 | 7.43 | 4 |
| SCCO | 115.67 | 53.68 | 29.67 | 8.81 | 5 |
| SCPI | 198.94 | 96.21 | 64.60 | 8.07 | 5 |
| SHDA | 98.12 | 12.82 | 80.85 | 9.04 | 5 |
| SIMA | 125.40 | 28.29 | 27.54 | 7.83 | 4 |
| SIMM | 61.79 | 51.52 | 68.60 | 8.03 | 3 |
| SIPD | 89.85 | 9.94 | 4.32 | 9.05 | 4 |
| SMCB | 29.29 | 65.26 | 77.33 | 9.35 | 8 |
| SMGR | 83.08 | 48.30 | 51.01 | 9.74 | 6 |
| SMPL | 82.97 | 40.03 | 28.52 | 8.19 | 5 |
| SMSM | 100.79 | 33.39 | 68.02 | 8.80 | 4 |
| SOBI | 92.48 | 37.63 | 58.24 | 8.69 | 4 |
| SPMA | 45.57 | 78.51 | 44.73 | 8.67 | 3 |
| SQBI | 119.39 | 31.55 | 68.00 | 8.30 | 4 |
| SRSN | 101.99 | 57.91 | 57.44 | 8.15 | 5 |
| SSTM | 57.59 | 62.86 | 57.37 | 8.72 | 3 |
| STTP | 138.69 | 40.47 | 60.39 | 8.85 | 3 |
| SUBA | 39.28 | 65.79 | 19.53 | 8.65 | 3 |
| SUGI | 10.31 | 3.02 | 68.00 | 7.83 | 3 |
| TBMS | 182.74 | 79.29 | 42.41 | 9.01 | 5 |
| TCID | 164.38 | 12.03 | 60.12 | 8.80 | 8 |
| TFCO | 91.68 | 65.26 | 93.50 | 9.29 | 7 |
| TIRA | 78.96 | 57.88 | 44.64 | 8.35 | 3 |
| TIRT | 77.05 | 68.03 | 30.02 | 8.61 | 5 |
| TKIM | 41.08 | 80.23 | 63.40 | 9.87 | 7 |
| TOTO | 84.67 | 76.71 | 38.80 | 8.67 | 7 |

| | | | | | |
|---|---|---|---|---|---|
| TRST | 46.78 | 43.70 | 17.98 | 8.90 | 4 |
| TSPC | 109.30 | 15.61 | 66.13 | 9.33 | 9 |
| TURI | 181.84 | 67.97 | 66.22 | 9.43 | 4 |
| ULTJ | 43.77 | 49.98 | 26.11 | 8.69 | 3 |
| UNIC | 93.92 | 59.89 | 46.65 | 9.33 | 5 |
| UNTR | 113.48 | 73.99 | 49.12 | 9.84 | 6 |
| UNVR | 237.79 | 38.40 | 84.99 | 9.91 | 10 |

**2004**

| CODE | AU | CS | OC | FS | BS |
|---|---|---|---|---|---|
| ACAP | 129.85 | 20.29 | 64.93 | 8.27 | 3 |
| ADES | 121.92 | 83.03 | 65.07 | 8.10 | 6 |
| AKRA | 129.42 | 39.86 | 71.24 | 9.34 | 4 |
| ALMI | 120.59 | 62.25 | 36.59 | 9.05 | 5 |
| AMFG | 93.17 | 33.49 | 43.76 | 9.16 | 13 |
| APLI | 78.19 | 54.97 | 46.16 | 8.38 | 4 |
| AQUA | 198.65 | 46.11 | 90.99 | 9.12 | 3 |
| ARNA | 73.30 | 49.84 | 27.52 | 8.34 | 3 |
| ASGR | 82.71 | 42.02 | 76.87 | 8.67 | 4 |
| ASII | 113.28 | 49.62 | 47.21 | 10.65 | 6 |
| AUTO | 120.03 | 35.63 | 85.40 | 9.47 | 7 |
| BATA | 167.95 | 33.48 | 65.00 | 8.64 | 6 |
| BATI | 195.95 | 41.77 | 71.00 | 9.13 | 5 |
| BRAM | 86.10 | 49.06 | 19.78 | 9.17 | 8 |
| BRNA | 87.12 | 37.72 | 51.42 | 8.35 | 3 |
| BTON | 159.18 | 19.86 | 54.30 | 7.66 | 4 |
| BUDI | 98.80 | 75.54 | 19.74 | 8.97 | 6 |
| CEKA | 57.73 | 29.55 | 50.08 | 8.22 | 4 |
| CLPI | 142.13 | 36.29 | 59.00 | 8.07 | 4 |
| CTBN | 103.08 | 15.93 | 27.66 | 8.83 | 5 |
| DAVO | 65.41 | 56.30 | 23.17 | 9.01 | 3 |
| DLTA | 139.43 | 22.21 | 58.30 | 8.80 | 4 |
| DNKS | 129.57 | 44.50 | 71.46 | 9.13 | 4 |
| DPNS | 50.36 | 20.54 | 49.67 | 7.88 | 3 |
| DSUC | 125.62 | 80.80 | 59.39 | 8.72 | 4 |
| DVLA | 98.98 | 26.01 | 89.50 | 8.63 | 6 |
| DYNA | 74.28 | 53.19 | 36.09 | 8.87 | 3 |
| EKAD | 126.17 | 15.14 | 72.82 | 7.90 | 3 |
| ESTI | 89.71 | 36.50 | 52.06 | 8.69 | 3 |
| FAST | 275.66 | 39.69 | 44.00 | 8.95 | 6 |
| FASW | 54.29 | 59.42 | 52.40 | 9.15 | 4 |
| FMII | 41.35 | 43.52 | 55.56 | 7.61 | 2 |

| | | | | |
|---|---|---|---|---|
| FPNI | 43.19 | 64.27 | 17.90 | 8.20 | 4 |
| GDYR | 174.19 | 35.09 | 85.00 | 8.89 | 5 |
| GGRM | 117.97 | 40.76 | 66.80 | 10.39 | 10 |
| HDTX | 96.43 | 75.25 | 41.29 | 9.03 | 4 |
| HEXA | 156.51 | 55.49 | 48.59 | 9.00 | 9 |
| HMSP | 152.61 | 55.23 | 32.41 | 10.25 | 5 |
| IGAR | 132.37 | 33.91 | 63.10 | 8.57 | 4 |
| IKBI | 219.27 | 28.83 | 88.06 | 8.99 | 6 |
| INAF | 131.61 | 51.20 | 80.66 | 8.84 | 5 |
| INAI | 115.70 | 84.95 | 32.93 | 8.67 | 4 |
| INCI | 88.18 | 14.73 | 19.24 | 8.20 | 3 |
| INDF | 114.36 | 67.99 | 51.53 | 10.25 | 10 |
| INDR | 79.73 | 55.56 | 37.82 | 9.60 | 4 |
| INDS | 86.83 | 79.07 | 87.46 | 8.48 | 3 |
| INKP | 26.45 | 62.18 | 52.73 | 10.12 | 8 |
| INTA | 80.00 | 82.54 | 36.58 | 8.80 | 4 |
| INTP | 47.24 | 52.35 | 65.14 | 9.66 | 9 |
| JECC | 119.50 | 78.46 | 52.57 | 8.56 | 7 |
| JPRS | 154.80 | 46.97 | 19.94 | 8.58 | 4 |
| KAEF | 164.13 | 30.58 | 90.02 | 9.28 | 5 |
| KARW | 113.27 | 92.36 | 53.23 | 8.77 | 5 |
| KBLM | 53.79 | 45.31 | 17.86 | 8.10 | 3 |
| KDSI | 143.19 | 78.33 | 66.11 | 8.73 | 3 |
| KICI | 51.74 | 45.82 | 42.25 | 7.94 | 3 |
| KKGI | 70.12 | 38.35 | 18.77 | 8.20 | 4 |
| KLBF | 111.47 | 50.21 | 52.70 | 9.53 | 6 |
| KOMI | 125.07 | 55.13 | 68.42 | 9.04 | 7 |
| KONI | 88.39 | 66.03 | 64.16 | 7.77 | 3 |
| LAPD | 204.13 | 41.57 | 62.33 | 7.96 | 3 |
| LION | 75.74 | 17.85 | 28.85 | 8.05 | 4 |
| LMPI | 46.61 | 99.16 | 33.93 | 8.38 | 4 |
| LMSH | 208.75 | 59.11 | 25.55 | 7.95 | 3 |
| LIPIN | 30.01 | 42.03 | 25.00 | 7.59 | 3 |
| LTLS | 119.69 | 62.91 | 63.03 | 9.23 | 9 |
| MDRN | 165.36 | 83.62 | 41.12 | 9.22 | 3 |
| MERK | 186.24 | 23.16 | 74.00 | 8.57 | 6 |
| MLBI | 127.31 | 52.65 | 75.94 | 8.85 | 7 |
| MLPL | 51.45 | 59.50 | 50.13 | 9.40 | 6 |
| MRAT | 82.84 | 15.90 | 71.26 | 8.39 | 5 |
| MTDL | 206.33 | 54.35 | 13.07 | 9.10 | 3 |
| MYOR | 107.61 | 31.00 | 32.93 | 9.14 | 3 |
| NIPS | 88.95 | 57.53 | 37.11 | 8.23 | 4 |
| PAFI | 56.83 | 72.41 | 71.44 | 8.61 | 3 |
| PBRX | 242.73 | 36.30 | 21.00 | 8.49 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| PRAS | 123.62 | 71.48 | 45.24 | 8.73 | 4 |
| PYFA | 48.23 | 11.77 | 53.85 | 7.53 | 2 |
| RDTX | 55.31 | 16.18 | 39.82 | 8.25 | 4 |
| RICY | 74.74 | 26.27 | 27.60 | 8.35 | 4 |
| RYAN | 17.15 | 15.90 | 26.99 | 6.86 | 3 |
| SCCO | 162.38 | 64.23 | 29.67 | 9.00 | 5 |
| SCPI | 191.45 | 96.75 | 64.60 | 8.05 | 5 |
| SHDA | 101.24 | 16.08 | 77.30 | 9.09 | 5 |
| SIMA | 134.80 | 28.92 | 27.54 | 7.88 | 4 |
| SIMM | 68.92 | 45.40 | 68.60 | 7.97 | 3 |
| SIPD | 107.72 | 13.78 | 4.32 | 9.13 | 4 |
| SMCB | 31.49 | 71.36 | 77.33 | 9.37 | 8 |
| SMGR | 91.37 | 43.94 | 51.01 | 9.78 | 6 |
| SMPL | 110.58 | 37.66 | 28.52 | 8.33 | 5 |
| SMSM | 112.30 | 37.44 | 68.02 | 8.86 | 4 |
| SOBI | 107.91 | 35.51 | 58.24 | 8.76 | 4 |
| SPMA | 50.35 | 84.35 | 44.73 | 8.74 | 3 |
| SQBI | 116.29 | 33.48 | 68.00 | 8.35 | 4 |
| SRSN | 168.00 | 99.78 | 57.44 | 8.18 | 5 |
| SSTM | 59.32 | 68.52 | 57.37 | 8.74 | 3 |
| STTP | 151.55 | 32.37 | 60.39 | 8.85 | 3 |
| SUBA | 42.59 | 76.48 | 16.10 | 8.63 | 3 |
| SUGI | 90.38 | 28.51 | 68.00 | 7.77 | 3 |
| TBMS | 256.64 | 84.52 | 42.41 | 9.26 | 5 |
| TCID | 169.49 | 15.80 | 60.12 | 8.90 | 7 |
| TFCO | 101.68 | 74.13 | 93.50 | 9.41 | 7 |
| TIRA | 66.71 | 59.07 | 42.52 | 8.07 | 3 |
| TIRT | 177.09 | 137.56 | 28.32 | 8.87 | 5 |
| TKIM | 42.55 | 71.46 | 63.40 | 9.93 | 6 |
| TOTO | 80.57 | 79.51 | 39.50 | 8.76 | 7 |
| TRST | 47.24 | 50.02 | 17.98 | 8.96 | 4 |
| TSPC | 110.75 | 15.98 | 66.28 | 9.38 | 9 |
| TURI | 154.15 | 72.76 | 66.22 | 9.53 | 4 |
| ULTJ | 42.02 | 37.71 | 21.40 | 8.74 | 3 |
| UNIC | 102.00 | 59.13 | 47.31 | 9.44 | 5 |
| UNTR | 131.42 | 53.61 | 56.45 | 9.95 | 5 |
| UNVR | 245.24 | 36.81 | 84.99 | 9.95 | 10 |

## APPENDIX III:

## Descriptive Statistics of Research Variables

|  | AU | CS | OC | FS | BS |
|---|---|---|---|---|---|
| Mean | 106.9442 | 50.13336 | 51.33456 | 19.99998 | 4.747788 |
| Median | 94.75500 | 47.40500 | 52.18000 | 20.07000 | 4.000000 |
| Maximum | 1541.060 | 450.4400 | 93.50000 | 24.52000 | 13.00000 |
| Minimum | 0.090000 | 0.050000 | 2.760000 | 11.79000 | 2.000000 |
| Std. Dev. | 85.82573 | 30.74891 | 20.74938 | 1.587373 | 2.018346 |
| Skewness | 10.52454 | 5.052677 | -0.017370 | -0.303272 | 1.386406 |
| Kurtosis | 173.7634 | 65.11669 | 2.194348 | 5.641070 | 4.545307 |
|  |  |  |  |  |  |
| Jarque-Bera | 557527.3 | 74591.31 | 12.24697 | 138.2959 | 189.7733 |
| Probability | 0.000000 | 0.000000 | 0.002191 | 0.000000 | 0.000000 |
|  |  |  |  |  |  |
| Sum | 48338.77 | 22660.28 | 23203.22 | 9039.990 | 2146.000 |
| Sum Sq. Dev. | 3322091. | 426418.3 | 194172.2 | 1136.408 | 1837.248 |
|  |  |  |  |  |  |
| Observations | 452 | 452 | 452 | 452 | 452 |

## APPENDIX IV:

## The Result of Multicollinearity Test

|  | AU | CS | OC | FS | BS |
|---|---|---|---|---|---|
| AU | 1.000000 | 0.485970 | 0.082102 | 0.231105 | 0.101153 |
| CS | 0.485970 | 1.000000 | -0.125413 | 0.268720 | 0.059356 |
| OC | 0.082102 | -0.125413 | 1.000000 | 0.143136 | 0.182319 |
| FS | 0.231105 | 0.268720 | 0.143136 | 1.000000 | 0.568203 |
| BS | 0.101153 | 0.059356 | 0.182319 | 0.568203 | 1.000000 |

# APPENDIX V:

## The Result of Autocorrelation Test

| Sample: 1 452 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Included observations: 452 | | | | | | | |
| Autocorrelation | Partial Correlation | | | AC | PAC | Q-Stat | Prob |
| .|. | .|. | | 1 | -0.001 | -0.001 | 0.0006 | 0.981 |
| .|. | .|. | | 2 | 0.009 | 0.009 | 0.0387 | 0.981 |
| .|. | .|. | | 3 | -0.011 | -0.011 | 0.0947 | 0.992 |
| .|. | .|. | | 4 | 0.034 | 0.034 | 0.6359 | 0.959 |
| .|. | .|. | | 5 | 0.017 | 0.018 | 0.7752 | 0.979 |

# APPENDIX VI:

## The Result of Heteroscedasticity Test

| White Heteroskedasticity Test: | | | | |
|---|---|---|---|---|
| F-statistic | 1587.583 | Probability | | 0.00000 |
| Obs*R-squared | 436.7656 | Probability | | 0.00000 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 02/25/07   Time: 18:29
Sample: 1 452
Included observations: 452

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -44110.95 | 33013.64 | -1.336143 | 0.1822 |
| CS | -495.8555 | 19.05795 | -26.01830 | 0.0000 |
| CS^2 | 4.906519 | 0.057228 | 85.73584 | 0.0000 |
| OC | -72.62683 | 74.67772 | -0.972537 | 0.3313 |
| OC^2 | 0.836127 | 0.715719 | 1.168233 | 0.2433 |
| FS | 11877.13 | 7557.997 | 1.571465 | 0.1168 |
| FS^2 | -579.5840 | 434.0403 | -1.335323 | 0.1825 |
| BS | -239.0183 | 842.3287 | -0.283759 | 0.7767 |
| BS^2 | 19.77161 | 65.43312 | 0.302165 | 0.7627 |

| R-squared | 0.966296 | Mean dependent var | 5415.22 |
|---|---|---|---|
| Adjusted R-squared | 0.965687 | S.D. dependent var | 37739.7 |
| S.E. of regression | 6990.821 | Akaike info criterion | 20.5629 |
| Sum squared resid | 2.17E+10 | Schwarz criterion | 20.6440 |
| Log likelihood | -4638.078 | F-statistic | 1587.53 |
| Durbin-Watson stat | 1.920234 | Prob(F-statistic) | 0.00000 |

## APPENDIX VII:

## The Result of Multiple Regression by Using OLS

Dependent Variable: AU
Method: Least Squares
Sample: 1 452
Included observations: 452

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -80.98232 | 51.72663 | -1.565583 | 0.1182 |
| CS | 1.339952 | 0.120011 | 11.16528 | 0.0000 |
| OC | 0.538283 | 0.173220 | 3.107522 | 0.0020 |
| FS | 10.65853 | 6.704554 | 1.589745 | 0.1126 |
| BS | 0.094281 | 2.124656 | 0.044375 | 0.9646 |

| | | | |
|---|---|---|---|
| R-squared | 0.263207 | Mean dependent var | 106.9442 |
| Adjusted R-squared | 0.256614 | S.D. dependent var | 85.82573 |
| S.E. of regression | 73.99882 | Akaike info criterion | 11.45698 |
| Sum squared resid | 2447694. | Schwarz criterion | 11.50248 |
| Log likelihood | -2584.277 | F-statistic | 39.92079 |
| Durbin-Watson stat | 1.994662 | Prob(F-statistic) | 0.000000 |

## APPENDIX VIII:

## The Result of Multiple Regression by Using Newey-West LS

Dependent Variable: AU
Method: Least Squares
Sample: 1 452
Included observations: 452
Newey-West HAC Standard Errors & Covariance (lag truncation=5)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -80.98232 | 37.33058 | -2.169329 | 0.0306 |
| CS | 1.339952 | 0.878496 | 1.525280 | 0.1279 |
| OC | 0.538283 | 0.186954 | 2.879234 | 0.0042 |
| FS | 10.65853 | 7.463234 | 1.428138 | 0.1540 |
| BS | 0.094281 | 1.690263 | 0.055779 | 0.9555 |

| | | | |
|---|---|---|---|
| R-squared | 0.263207 | Mean dependent var | 106.942 |
| Adjusted R-squared | 0.256614 | S.D. dependent var | 85.8253 |
| S.E. of regression | 73.99882 | Akaike info criterion | 11.4568 |
| Sum squared resid | 2447694. | Schwarz criterion | 11.5028 |
| Log likelihood | -2584.277 | F-statistic | 39.9209 |
| Durbin-Watson stat | 1.994662 | Prob(F-statistic) | 0.00000 |