Employee Stock Option Program (ESOP): Market Reaction and Firm Performance

Evidence from Thailand

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May 2007

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An Independent Study
Submitted in Partial Fulfillment of
the Requirement for the Degree of
Master of Science Program (Finance)

Master of Science Program in Finance (International Program)
Faculty of Commerce and Accountancy
Thammasat University, Bangkok, Thailand
May 2007

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On May, 2007 by

Advisor: _____

(Assoc. Prof. Dr. Kulpatra Sirodom)

Abstract

As the use of ESOP in Thailand tends to increase continuously, to know the consequences and effects of ESOP on the sponsoring firm is important. In this study, the consequences of the ESOP adoptions are investigated in two prospects, market reaction and financial performance. Moreover, how characteristics, size and discount, of ESOP and types of business of sponsoring firms affect the consequences of the adoptions are also examined. The overall results of the study show that the shareholders, on average, perceive the information about introductions of ESOP as negative and the market reacts most optimistically to the small size out-of-the-money warrant ESOP. Also, there is no difference in market responses among sponsoring firms within different types of business after the announcements of ESOP. Additionally, in overall, the results show that there is no statistically significant change in financial performance of sponsoring companies found after the ESOP adoptions, apart from ROA that falls statistically significantly. However, the impacts on ROA and ROE of the companies issuing the small size ESOP seem statistically significantly better than those issuing the large size ESOP.

1. Introduction

In recent years, many firms have shifted towards equity-based compensation (EBC) for their employees. In US, during the 1993-2003 period, EBC has increased considerably in both new economy and old economy firms (**Bebchuk and Grinstein, 2005**). The widely-accepted economic reason of this increasing popularity is that the EBC can potentially align the interests of the shareholders and the managers and thus mitigate the agency problem inherent in large public corporations (**Jensen and Meckling, 1976**). Moreover, for both management and non-management level of employees, this type of compensation provides an incentive for those employees to increase their efforts and improve their decisions in the areas over which they control, resulting in higher productivity and better corporate performance.

There are many studies that observe the effects of this type of employee benefit in various prospects. The effect of such plan adoptions on corporate performance (**Pugh et al, 2000**), productivity and profitability (**Bloom, 1985**), common share prices (**Adamson, 1993**), for instances. However, those researches have produced mixed results; vary upon the types of equity issued, characteristic of stock market in each country, sample collection and so on (**Conte and Tannenbaum, 1978; Livingston and Henry, 1980; Rosen and Quarrey, 1987; Kumbhakar and Dunbar, 1993**).

Such conflicting effects may occur due to the fact that such a plan awards a fraction of ownership in the firm to its employee, which gives employees not only residual claims but also voting rights. The former may boost employee's morale and productivity, whereas the latter tends to entrench incumbent managers. In other words, enhanced employee morale should improve corporate performance, but management entrenchment harms shareholder wealth (**Park and Song, 1995**).

In Thailand, even not widespread as in US, the use of EBC continuously increases. Such compensation is granted to employees in forms of stocks and/or warrants. According to the SEC regulation, those compensations are defined as Employee Stock Option Program (ESOP). Several listed companies in Thailand use ESOP both to reward employees and to provide incentives to encourage them to work

for the growth of the company. During the 2001-2005 period, there are 106 ESOP issuances by 75 listed companies in Thailand, which over 70% of total series are taken in the last three years as graphically shown below. Figures 1 shows cumulative ESOP issuances in the SET during 2001 – 2005, separated by types of the issues.

Figure 1: Cumulative ESOP issuances in the SET during 2001 – 2005 separated by types of the issues
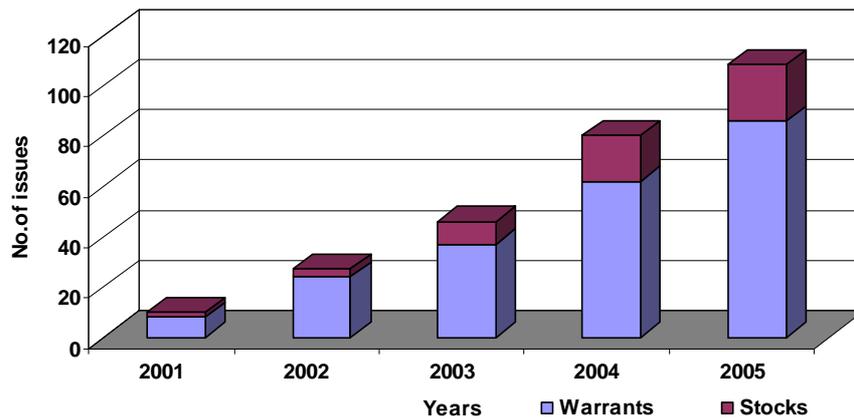
Source: *Thailand Securities and Exchange Commission (SEC)*

In Thailand, ESOP is permitted and regulated by the SEC. Special regulations for these schemes are needed because directors who propose the scheme for shareholders' approval are the ones who directly benefit from the programs at shareholders' cost of dilution. In this connection, the Board of the SEC issued a regulation in 1995 to put up the granting of stock options and, at the same time, protect the rights of existing shareholders.

Initially, the Board of the SEC was of the second view, i.e. to have a minimum requirement of information disclosed in the notice to call shareholders' meeting and to limit the size of ESOP to five percent of paid-up capital. Besides, the employee stock options must not dilute the stock price by more than four percent. To exceed the limit, the issuing company must prove to the shareholders and the Office of the SEC how the scheme is crucial for the survival of the company or how it is directly benefit the business and the Office can still exercise its discretion.

Later in 2001, the Board of the SEC relaxed the requirement limiting the size of ESOP by reducing the above discretion of the Office and allowing shareholders to

make their own business decisions. At the same time, mechanisms to empower the exercise of shareholders' rights were strengthened, especially for the schemes with concentrated allocation among few directors or those that are offered below market price and cause outright dilutions to shareholders. Such mechanism includes requirements for additional information disclosure, additional approval by an independent compensation committee, and the enabling of 10 percent shareholders to veto the program. The above measures are aimed at promoting companies to use ESOP in such a way that truly benefit the companies and shareholders.

As the use of ESOP in Thailand tends to increase continuously, to know the consequences and effects of ESOP on the sponsoring firm is important. The study can help management in making decision regarding employee compensation strategy. If the results show that ESOP tends to entrench incumbent managers and enhance employee incentives, it may be one choice in rewarding employees, for instance.

However, currently, studies about ESOP in Thailand are not widespread. The results of the study of ESOP in Thailand by **Charoensakworakul (2006)** show non-existence of statistically significant abnormal return of sponsoring companies' stock around event date. Furthermore, in such study, adopting ESOP is said to be no statistically significant meaning to translate into high performance. Also, he found that ESOP in Thailand might not be an ultimate tool to handle the conflict of interest. Moreover, **Asawarachan (2001)**, who studied on whether ESOP can reduce agency problem, reported that ESOP in Thailand had no statistically significant impact in term of reducing agency problem but instead lessened the shareholders' benefits by shortening dividend payments.

This study extends existing studies by examining how characteristics of ESOP, size and discount, affect the consequences of the adoptions. Also, this study investigates whether ESOP issuances have different impacts to the sponsoring firms in different types of business.

The consequences of ESOP adoptions in this paper is examined in two directions, which are; 1) Wealth effects of ESOP by reporting the reaction of common stock prices to announcements of ESOP. 2) Corporate financial performance effects

by comparing the financial performance of the same company before and after applying ESOP using acceptable accounting measures of performance. Results in this study will be of interest to potential firms that might use ESOP as employee compensation in the future. The objectives of this study are as follows;

- To investigate the reaction of common stock prices to announcements of ESOP measured by companies' stock returns.
- To examine the effect of ESOP adoptions on corporate financial performance by considering accounting measures, Net Profit Margin (NPM), Return on Assets (ROA), Return on Equity (ROE), and Total Asset Turnover (TATO) as well as the overall performance based on Tobin's Q (Q).
- To explore how market and firm performance response to ESOP with different characteristics.
- To investigate whether the ESOP issuances affect differently to the sponsoring firms in different type of business.

The sample of the empirical test of this study covers listed companies in the Stock Exchange of Thailand (SET) adopting ESOP during the first trading date of the year 2001 to the last trading date of June 2005 in order to make the post-adoptions performance available for testing. Moreover, the ESOP issued at the same time or immediately after IPO is eliminated due to the unavailability of historical data as the estimate window starts on day t -200 and ends with day t -21.

The evidences from this study indicates that the shareholders, on average, perceive the information about introductions of ESOP as negative and the market reacts most optimistically to the small size out-of-the-money warrant ESOP. Also, there is no difference in market responses among sponsoring firms within different types of business after the announcements of ESOP. Additionally, in overall, the results show that there is no statistically significant change in financial performance of sponsoring companies found after the ESOP adoptions.

Also, it is important to note that this study is subject to many limitations as follows;

- The adequacy of data during the investigating period. Even increasing, the adoptions of ESOP in Thailand have not been widespread, thus, this study faces a limitation of sample size employed, which might cause the less reliable results when compares to other studies in other countries such as in US.

- The computation of company financial ratios. This study removes an industry effect from performance measures by subtracting company financial performance ratios by sector's figures. Nevertheless, some industries in the SET comprise companies, broadly different in their core business. Therefore, the sector-adjusted ratios might offer unclear results.

- Other factors affecting market reaction and corporate financial performance other than an ESOP announcement. Due to the fact that this study mainly concentrates on the consequences of ESOP adoption, therefore, other factors affecting market reaction and corporate financial performance are not covered. This might also cause imprecise results.

After beginning with a brief description of ESOP, the second topic shows a summary of prior researches on ESOP, market reaction and firm performance. Next, a theoretical framework is provided in the third topic. This discussion provides the foundation for several hypotheses that are then tested based on data and methodology described in the forth topic. The paper concludes, in the last, with a discussion of the findings, limitations of this research, and implications for stakeholders.

2. Literature Review

In the past, there are many studies on consequences of ESOP adoption. Those studies can mainly be separated into two aspects, the tests of market reaction and also financial performance of firms after adopting ESOP.

2.1 Market Reaction

During the past two decades, many papers have examined the market reaction to the announcement of ESOP. The results of previous studies mainly found a positive link between announcements of ESOP and shareholder wealth. **Chang (1990)** reported that stock price reactions of firms adopting an ESOP as an employee benefit plan were positive, except when the ESOP was adopted as a takeover defense. **Dhillon and Ramirez (1994)** found that an adoption of an ESOP was, in general, associated with positive wealth. Also, the study of **Conte et al. (1996)** shown that the return was higher, on average, for companies that sponsored an ESOP than for those that did not.

Likewise, studies by **Tehranian and Waegelein (1985)**, **Brickley et al. (1985)**, and **DeFusco et al. (1990)** also documented positive abnormal stock returns following the adoption of bonus or stock option plans. In Finland, **Ikäheimo et al. (2000)** documented a modest positive stock price reaction to firms' initial adoption of stock option compensation. **Muhtaseb (1997)** reported that the favorable market reactions were found among good credit rating firms. Besides, **Taylor (1981)** concluded that ESOP implementation would enhance firm value due to increases in firm information flow, increases in self and peer monitoring on the part of employees, and establishment of reciprocal agency between employees and managers.

However, in Thailand, **Charoensakworakul (2006)** found non-existence of statistically significant abnormal return of sponsoring companies' stock around event date, which is resulted by investor's expectation on the context of such plan.

Generally, the possible explanations of ESOP in generating a positive impact on the stock price are that ESOP mitigates the problem of conflict of interest between employees and shareholders by aligning their interests and also provides the employer a low cost source of financing.

Accordingly, even the study of **Charoensakworakul (2006)** found non-existence of statistically significant abnormal return of sponsoring companies' stock around event date, in this study, by examining separately between different

characteristics of ESOP and also types of business of the sponsoring firms, I hypothesize that an adoption of ESOP could also generate abnormal return to investors.

2.2 Financial Performance

Arguments have been put on both sides of the employee ownership and firm performance debate. On the one hand, employee ownership might constrain firm performance as noted by **Blasi et al. (1996)** that individual employees have an incentive to shirk in a stock ownership compensation scheme as it is a group-based reward system. **Jensen and Meckling (1979)** assert that employee ownership distorts the firm's production function due to an over emphasis on labor and delayed compensation reduces employee motivation. Also, firm investment and growth may be limited by employee-owner concern regarding equity maintenance (**Bradley et al., 1990**).

On the other hand, **Conte and Svejnar (1990b)** document six potential linkages between employee ownership and improved firm performance. First, employee ownership may provide incentives for increased employee effort by blending group performance and individual compensation. Second, employee ownership may diffuse labor-management tensions by aligning the interests of employees and employers. Third, employee-owned companies achieve a higher quality of work force as they attract employees who are drawn toward a performance dependent compensation system. Fourth, vesting procedures may reduce turnover, which will increase returns from training investments. Fifth, employee ownership may reduce the need for costly hierarchical monitoring, which is replaced by greater and cheaper horizontal monitoring. Finally, since managers and employees goals are more integrated under employee ownership, both parties may be more willing to share their respective asymmetric organizational information.

The study by **Dunbar and Kumbhakar (1992)** together with that by **Kruse (1992 and 1993)** found no efficiency gains or losses for ESOP adopters. In other word, they found that adoption effects of ESOP are generally statistically

insignificant. While, in a subsequent study, **Kumbhakar and Dunbar (1993)**, statistically significant post-adoption productivity growth was found amount companies that had just adopted ESOP. Also, **Conte and Tannenbaum (1978)** reported that ESOP firms had higher profit-sales ratios their industry counterparts, which can be confirmed by the study by **Bloom (1985),** who found that productivity and profitability measures for ESOP firms were much higher than for non-ESOP firms. Moreover, **Rosen and Quarrey (1987)** compared 45 ESOP firms in terms of employee and sales growth with five non-ESOP firms, each in the same industries, over a ten-year period of time. They found that ESOP firms had higher growth rates than non-ESOP firms. **Rosen (1989) and Cohen and Quarrey (1986)** reported similar results.

Although the results of previous studies are mixed, many of them seem to indicate some improvements in corporate performance. Accordingly, I hypothesize that an adoption of ESOP in Thailand should also affect positively to corporate financial performance. Also, even though the study of **Charoensakworakul (2006)** found no statistically significant meaning of ESOP adopting to translate into high performance, examining separately between different characteristics of ESOP and also types of business of the sponsoring firms might provide different results.

3. Theoretical Framework

3.1 Market Efficiency Theory

Market efficiency means that the market price of a stock shows the market's consensus estimate of the value of that stock. If the market is efficient, it inherits all information available to a stock in its price **(Ross, Westerfield & Jaffe, 1999)**. For the event study, I assume that the market responds immediately to all available information. According to the theory, there are three forms of market efficiency as follow.[1]

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[1] *For a further review on the three types of efficiency, see Fama (1970).*

- *Weak-form efficiency*. No investor can make excess return by developing trading rules on historical price or return information;
- *Semi-strong-form efficiency*. No investor can earn excess returns from trading rules based on any publicly available information; and
- *Strong-form efficiency*. No investor can earn excess returns using any information whether publicly available or not.

Therefore, in an efficient market, investors who decide to hold a stock are doing so because the current available information leads them to think that the stock is worth at least as much as its current market value. Those who do not purchase the stock, in contrast, believe that their information indicates a lower appraisal of the current stock value.

An efficient financial market exists when stock prices reflect all available public information about the economy, financial markets, and the specific company involved **(Copeland and Weston, 1992)**. The implication is that market prices of individual stocks adjust very quickly to new information. As a result, stock prices are said to fluctuate randomly about their intrinsic values.[2] New information can affect a change in the intrinsic value of a stock, but subsequent security price movement will follow what is known as a "random walk".[3] The random walk assumption means that no one can use past stock prices to predict future price in such a way as to profit on it on average. Moreover, close attention to news releases will not be beneficial because before an investor is able to take action, adjustments have already been made according to market efficiency.

In this study, I assume market efficiency for the analysis. Market efficiency is of great importance for the analysis because it immediately signals investors' perception on news, which is what the event study is based on. In other words, if the

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[2] *Intrinsic value is the value of an asset that, in the mind of a particular investor, is justified by the facts (Weston and Brigham, 1978).*

[3] *A random walk means that no difference exists between the distribution of returns conditional on a given information structure and the unconditional distribution of returns. For a formal presentation of this condition, see Eugene F. Fama (1970).*

market is efficient, the study will show the shareholder reactions of the introduction of ESOP in companies.

*3.2 Agency Theory (**Jensen and Meckling, 1976**)*

The relationship of ESOP to corporate performance can be examined in terms of agency theory. The goals of managers and shareholders are not always aligned. Agency theory suggests this misalignment creates the need for costly monitoring through compensation contracts **(Jensen and Meckling, 1976; Fama and Jensen, 1983)**, defined as agency cost. These costs are incurred by shareholders, *the true owners of the firm*, who rely on managers of the company (agents) to manage the company in a way that will maximize returns. As a result, a separation of ownership and control exists. The degree to which managers use their abilities to maximize shareholder's wealth is dependent on the percentage of equity ownership the manager has in the firm **(Jensen and Meckling, 1976; Walking and Long, 1984; Eisenhardt, 1989)**. The theory further contends that managers, by acting as agents for owners, may pursue strategies and goals to meet their own interest rather than that of the owners.

The theory argues that under conditions of incomplete information and uncertainty, which characterize most business settings, two agency problems arise: adverse selection and moral hazard. Adverse selection is the condition under which the principal cannot ascertain if the agent accurately represents his ability to do the work for which he is being paid. Moral hazard is the condition under which the principal cannot be sure if the agent has put forth maximal effort **(Eisenhardt, 1989)**. For examples, given concerns about job security, a manager might tend to make less risky investment decisions than what an owner would make. As a result, the overall performance of the company may be less than an optimal level. Therefore, if managerial ownership promotes entrenchment, resources can potentially be inefficiently used and shareholder wealth may suffer **(Fama and Jensen, 1983)**.

Agency theory explains how to best organize relationships in which one party (the principal) determines the work, which another party (the agent) undertakes **(Eisenhardt, 1985)**. To align the goals of the two parties, compensation contracts

should be designed to motivate the executive to make decisions that will not only increase his or her wealth, but will also increase shareholder wealth. Steps taken to increase shareholder wealth should be reflected in improved firm performance. Compensation contracts should include both short and long-term incentives. Including both components in the contracts helps ensure the decisions of the executive are linked to various time horizons. Short-term components motivate the executive to make decisions that have an immediate affect on the firm. Long-term components are necessary to lengthen the decision horizon of the executive and enhance the likelihood of continued improvement in firm value. The long-term incentives in these contracts can be based on improved shareholder wealth as well as improved firm performance.

By definition, ESOP increases the percentage of 'insider owners' in a company[4] **(Pugh et al., 2000)**. However, there are two prospects of this scheme. Firstly, if the new owners truly have decision-making authority, then, according to agency theory, efforts will be made to increase shareholder wealth, and also corporate performance should increase. Secondly, if the employee owners are with little or no decision-making authority, management may gain more control **(Pugh et al., 2000)**. That is, the employees, who are hired and evaluated by management, will align themselves with management due to their concerns about job security. Accordingly, in this case, ESOP would then facilitate management entrenchment and, therefore, possibly lower corporate performance **(Chang and Mayers, 1992)**.

Theoretically, ESOP mitigates the problem of conflict of interest between employees and shareholders by aligning their interests and also provides the employer a low cost source of financing. Thus, ESOP adoption should affect positively to the firm stock price, determined by positive abnormal returns associated with such announcements.

This argument leads to the following null hypothesis:

NULL HYPOTHESIS 1: There are no abnormal returns associated with the announcements of ESOP in Thailand.

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[4] *Inside ownership is generally measured in terms of stockholdings of both officers and directors (Lloyd et al., 1986; Kim et al., 1988). The typical use of this term does not include employee-owners who do not have considerable decision-making authority.*

Also, in the view of ESOP as an incentive to employee, the implementation of ESOP should increase firm's productivity and then corporate financial performance increases, determined by better accounting measures after adopting ESOP.

This argument leads to the following null hypothesis:

NULL HYPOTHESIS 2:   The adoptions of ESOP in Thailand do not affect the corporate financial performance of the sponsoring firms.

Moreover, due to the different characteristics of ESOP adopted, their consequences may not be the same, both in terms of market reaction and financial performance.

This argument leads to the following null hypothesis:

NULL HYPOTHESIS 3:   There are no differences between the consequences of the adoptions of ESOP with different characteristics, both in terms of market reaction and financial performance.

In addition, as the sponsoring companies are in different types of business, the impacts of the ESOP adoptions may be unlike.

This argument leads to the following null hypothesis:

NULL HYPOTHESIS 4:   There are no differences in the consequences of the ESOP adoptions of the sponsoring companies in different types of business, both in terms of market reaction and financial performance.

4. Data and Methodology

4.1 Sample and Data Collection

The empirical test of this study covers the ESOP adoptions of listed companies in the Stock Exchange of Thailand (SET) announced during the first trading date of the year 2001 to the last trading date of June 2005 in order to make the post-adoption performance available for testing. Moreover, the ESOP issued at the same time or immediately after IPO is eliminated due to the unavailability of historical data as the estimate window starts on day t -200 and ends with day t -21. By considering all those, there are only 66 ESOP issuances by 43 sponsoring firms that match with the sample selection criteria. A listing of those 66 ESOP issuances by 43 sponsoring companies is shown in Table 1B in Appendix B. The data for this study are obtained preliminary from three sources. Firstly, the company-specific financial data, such as financial statements and also form 56-1, are from the Stock Exchange of Thailand (SET) using SETSMART. Secondly, the ESOP reports are obtained from the Securities and Exchange Commission, Thailand (SEC). Lastly, Datastream is used to collecting time series of stock prices.

4.2 Abnormal Return Measurement

In this research, event study methodology of **Fama, Fisher, Jensen and Roll (1969)** is employed to measure the extent of the stock price's abnormal effect caused by the announcement of ESOP.

Assuming the market participators are rational, the impacts and effects of an event will reflect soon on the assets price changes. So the effects of an event can be measured by observing assets price changes in a relatively short term. In this paper, the abnormal return of the stocks during a period of time before and after an event takes place is calculated, and test the market effect of the event according to whether the abnormal return is statistically significant or not. To assess the abnormal return, the cumulative abnormal return is absorbed; the daily abnormal return is defined as the difference of the actual return minus the estimated return, while the estimated return is calculated by some price-fixing pattern. So the cumulative abnormal return is

the accumulation of all the abnormal returns occurring during certain time before and after the event happens, and the specific method is as follows:

(1) Confirming the event day: The day the ESOP is announced by the SEC is regarded as the event day.

(2) Selecting the event window: The event window period is 41 days, which means the event period is [-20, +20].

(3) Choosing estimate window: The estimation period starts on day t -200 and ends with day t -21.

(4) Calculating the actual return: It means the actual price change rate of a stock during a period of time. In this paper, the actual return is the return per day. The formula to calculate the return is;

$$R_{j,t} = \ln(P_{j,t} / P_{j,t-1})$$ (1)

where;

$R_{j,t}$ = Actual return of stock j on day t

$P_{j,t}$ = Closing price of stock j on day t

$P_{j,t-1}$ = Closing price of stock j on day t-1

(When t is negative, it means day t before the announcement day.)

(5) Estimated return: In this paper, the market model is used to calculate the estimated return of each stock during the observing period.

Firstly, figure the return of a certain stock as the function of the market investment portfolio's return plus an accidental error:

$$E(R_{j,t}) = \alpha_j + \beta_j R_{m,t} + \varepsilon_{j,t}$$ (2)

where;

$$E(R_{j,t})$$ = Estimated return of stock j on day t

$$R_{m,t}$$ = Actual return of the market on day t, representing by SET index

$$\varepsilon_{j,t}$$ = Random disturbance term for stock j on day t

The coefficients α_j and β_j are constants. $R_{m,t}$ is calculated as follow;

$$R_{m,t} = \ln(P_{m,t} / P_{m,t-1}) \tag{3}$$

where;

$$P_{m,t}$$ = Closing index on day t of SET

$$P_{m,t-1}$$ = Closing index on day t-1 of SET

Secondly, calculate the estimated value of α_j and β_j according to the data of day t -200 to day t -21 (200 days before the announcement day to 21 days before the announcement day).

Lastly, calculate the estimated return according to the data of each trading day within the observing period, by using the estimated value of α_j and β_j and the formula:

$$E(R_{j,t}) = \alpha_j + \beta_j R_{m,t} \tag{4}$$

(6) Calculating abnormal return: The actual return minus the estimated return is the AR (abnormal return).

$$AR_{j,t} = R_{j,t} - E(R_{j,t}) \tag{5}$$

where;

$$AR_{j,t}$$ = Abnormal return of stock j on day t

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Because the purpose of this study is to examine in general the effect of an ESOP on the value of the firm's stock, this research analyses the average effect across firms in relation to their ESOP announcement date. In other words, this is to determine the return for an equally weighted portfolio. The average value of every stock's abnormal return on some day in the observing period is the average abnormal return, that is;

$$AAR_t = \frac{1}{n} \sum_{j=1}^{n} AR_{j,t} \qquad (6)$$

where;

n   = No. of ESOP issuances evaluated in day t

(7)   The calculation of cumulative abnormal return (CAR): CAR is calculated in order to reflect the entire process of the event that affects the stock price around the announcement day. Its formula is;

$$CAR = \sum_{t=k}^{L} AAR_t \qquad (7)$$

where;

CAR = Cumulative abnormal return for stock j for the period beginning with t = k and ending with t = L.

The average cumulative abnormal return reflects the cumulative impact of the ESOP announcement in the market. This CAR is estimated for vary intervals, including the announcement day (t = 0), on which ESOP was disclosed by the SEC. The behavior of the cumulative average residuals reveals the shareholders' perception of ESOP implementation as reflected by stock prices.

(8)   Statistical tests: To test the abnormal return and the cumulative abnormal return whether they are statistically significant or not, I apply both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test. By using Wilcoxon Sign Rank Test, the restriction on distribution assumption can be ignored, while t-test assumes the sample follows normal distribution.

4.3 Operating Performance Measurement

In this paper, operating performance is measured by accounting figures. A number of financial ratios are examined to capture various aspects of performance. Those can be mainly separated into two groups, which are profitability ratios and productivity ratios. Profitability ratios consist of Net Profit Margin (NPM), Return on Assets (ROA) and Return on Equity (ROE). Productivity ratio used in this paper is Total Asset Turnover (TATO). Moreover, this study also measures the overall performance of the company using Tobin's *Q (Q)*, generally used in literatures.

4.3.1 Profitability Ratios

1) Net Profit Margin (NPM) is the percentage of sales amount left after subtracting the cost of goods sold and all expenses. This ratio measures the company's ability to control all expenses, calculated as follows:

Net Profit Margin Ratio = Net Profit after Tax / Net Sales

2) Return on Assets (ROA) measures the profit earned relative to the level of investment and also measures how efficiently profits are being generated from the assets employed in the company. A low ratio indicates an inefficient use of business assets. The Return on Assets Ratio is calculated as follows:

Return on Assets = Net Profit before Tax / Average Total Assets

3) Return on Equity (ROE) indicates how well the invested funds are used. If this measure is not sustained at an acceptable level, the company's standing as a potential investment and its capacity as a borrower will be affected. The Return on Equity Ratio is calculated as follows:

Return on Equity = Net Profit before Tax Available to Common Shareholders/ Average Common Equity

4.3.2 Productivity Ratio

Total Asset Turnover (TATO) measures the firm's efficiency in managing assets to generate revenue, calculated as follow.

Total Asset Turnover = Total Revenues / Average Total Assets

4.3.3 Overall Performance

In order to avoid the possibility of financial statement manipulations, especially in income statements, this study uses Tobin's *Q (Q)* as a proxy of firm's performance as well as showing its value enhancement. The simple Tobin's *Q* as suggested by **Agrawal et al. (1996)** is estimated as follow.

Tobin's *Q* = Total Market Value of Firm / Total Asset Value

A low *Q* (between 0 and 1) means that the cost to replace firm's assets is greater than the value of its stock. This implies that the stock is undervalued. Conversely, a high *Q* (greater than 1) implies that a firm's stock is more expensive than the replacement cost of its assets, which implies that the stock is overvalued. This measure of stock valuation is the driving factor behind investment decisions in Tobin's model. Using Tobin's *Q* also helps handle the arguments that accounting rate of return conveys little information about economic rates of return **(e.g., Fisher et al, 1983; Benston, 1985).**

Note, however, that Tobin's *Q* used in this paper is a simple version. The original version of Tobin's *Q* proposed by James Tobin **(Brainard and Tobin, 1968; Tobin, 1969)** is as follow.

Tobin's *Q* = Total Market Value of Firm / Replacement Cost

It is usually possible to get an accurate estimate for the market value of a firm's assets by summing the values of the securities that a firm has issued. Nevertheless, it is much more difficult to obtain an estimate of the replacement costs of its assets, unless markets for used equipment exist. Therefore, to avoid such a

problem, this paper employs a simple version, where the total book value of assets of firm is used as a rough proxy for estimating the replacement cost of a firm's assets. However, as accounting conventions value some assets at historical cost, with no adjustments for subsequent cost increases, and depreciate assets according to accounting conventions rather than true economic depreciation, inflation can cause book values to understate the replacement cost of assets (think of real estate); technological progress can cause the reverse (think of computers). Therefore, it is important to note that there can be some differences by using the simple version of Tobin's Q, when compares to using the original one.

In measuring each firm's pre- and post-ESOP performance, in this paper, the quarter that ESOP is announced is defined as quarter t. To examine the effects an adoption on corporate performance, the NPM, ROA, ROE, TATO and Q for each firm in quarter t-1 are compared to the average ratio in quarter t+1 to quarter t+6. To avoid effects from industry trends on the performance measures, the ratios used for comparison are subtracted by SET-defined-sector ratios.

Then the comparison is conducted using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test.

4.4 Characteristics of ESOP

In this study, size and discount of ESOP issued are used to classify the characteristics of ESOP.

4.4.1 Size of ESOP

In this paper, the size of ESOP is defined as follow:

Size of ESOP = No.of stocks for ESOP / Total no. of outstanding stocks

To investigate whether the different sizes of ESOP affects in different ways to the consequences of the adoptions, I categorize the size of ESOP issued into two groups, ESOP with size less than mean (Size < Mean) and ESOP with size greater

than mean (Size > Mean). Then, the consequences are tested separately by different categories, both in terms of abnormal return and operating performance, using those methodologies described earlier. The grouping for each category is shown in Table 2B in Appendix B.

4.4.2 Discount of ESOP

To examine the effects of ESOP discount, I consider only warrant ESOP as for stock ESOP, it is generally issued at discount, otherwise; employee had better buy such stock in the market. Therefore, there is no incentive associated with whether the strike price is less than or greater than the market price for stock ESOP. It is not appropriate to include them in the study, accordingly.

By the word "Discount of ESOP" in this study, it is classified into two groups, defined by whether the strike price (K) of warrant ESOP is less than or greater than the closing price of the underlying stock (S) on 1 day before the ESOP announcement (day t – 1), denoted by K < S and K > S, respectively. Note that the closing price of the underlying stock on day t – 1 is used as I believe that the closing price on day t has already included the effect of the ESOP announcement. The grouping for each category is shown in Table 3B in Appendix B.

4.5 Business Type Classification

As this paper also examines how types of business of the sponsoring companies affect the consequences of the ESOP adoptions, the way to classify the types of business has to be determined. However, by the definition of the SET, the ESOP sponsoring companies are in varied industries. As a result, investigating the consequences separately by each industry may lead to unclear results due to the limitation of sample size. Therefore, to avoid such a problem, I classify the ESOP firms into only two sectors, services sector and real sector. A listing of companies in each sector is shown in Table 4B in Appendix B.

5. Results and Analysis of the Event Study

This section shows the results of the event study and also the analysis. I begin the section by first showing the general information of the ESOP issuances. Next, the outcomes of the total sample are provided, and then in the following section, I divide the total sample into sub samples to narrow the results down in more detail.

5.1 General information

Table 1A in Appendix A provides some information of the ESOP issuances separated by types of ESOP issued, years of issuances, and also industries that the ESOP sponsoring companies are classified, according to the SET, during the studying period. According to the table, there are only 5 stock ESOP issued, including the one that issued both stock and warrant ESOP, which is only 7.58% of total 66 issuances.

The unpopularity of stock ESOP may possibly be explained by the fact that issuing stock ESOP immediately increases the number of the outstanding shares available in the market, the dilution effect actually occurs at that time, accordingly. Conversely, for warrant ESOP, the dilution effect will really occur at once the warrant is exercised. Therefore, market may react more negatively to the stock ESOP adoptions. Another reason that can explain the low esteem of the use of stock ESOP is the timing of tax responsibilities of employees under ESOP. That is, according to the Revenue Code, the tax responsibilities for employees who receive stock ESOP occurs immediately at the time they receive. Taxable income is calculated based on the difference between the price that employees pay for purchasing stocks and the market price on the stock ESOP issuance date. However, for warrant ESOP, the tax responsibilities of employees will occur when those warrants are exercised. Also, the taxable income is calculated based on the difference between the strike price and the market price on the exercise date.

Moreover, the stock ESOP seems to generate lower incentive for employees to improve either the company's stock returns or financial performance as it is only short-term compensation. The employees who receive the stock ESOP can sell those stocks immediately without any performance improvement. Conversely, since the

value of warrants increase as the underlying stock's price increases and also will end up with zero value if the company's operation fails, leading to the drop in the underlying stock's price to be less than the exercise price of those warrants, therefore; by applying the warrant ESOP, the sponsoring company can create higher motivation to its employees to improve their performance in order to make the company's stock price increase as they will gain from this situation.

Separated by industries, according to the classification by the SET, most of ESOP issued during the studying period are in Technology industry, the industry with the largest average market value of firms issuing ESOP[5].

5.2 Abnormal returns

Figure 2 shows the graphs of the results for the entire sample of ESOP announancement. As mentioned previously, the event day is the zero on the x-axis.

In null hypothesis 1, I hypothesize that there are no abnormal returns associated with the announcements of ESOP in Thailand. The results show that not only no abnormal returns, but the market also reacts statistically significantly negatively to the ESOP announcements. The CAR drops by 4%, with statistical significance, within 20 days after the adoptions[6]. The inconsistent outcomes were found compared with many previous literatures, which mainly found a positive link between announcements of ESOP and shareholder wealth, **Chang (1990)**, **Dhillon and Ramirez (1994)**, **Conte et al. (1996)**, **Tehranian and Waegelein (1985)**, **Brickley et al. (1985)**, **DeFusco et al. (1990)**, **Ikäheimo et al. (2000)**, **Muhtaseb (1997)**, **Taylor (1981)**.

Also, the results are inconsistent even with the previous study in Thailand by **Charoensakworakul (2006)**, who found, even not statistically significant, the existence of abnormal return of sponsoring companies' stock around event day. This

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[5] *The descriptive statistics and the industrial proportion of the samples are shown, respectively, in Table 2A and also Figure 1A in Appendix A*

[6] *Table 3A and Table 4A in Appendix A report, respectively, event study results on average abnormal returns (AAR) and cumulative abnormal returns (CAR) for the entire sample of ESOP announancement.*

may be due to the different period of sample collection. In **Charoensakworakul (2006)**, the samples covered the period of 1996-2004, including 1997 that financial crisis took place. The crisis may impact to the characteristics of samples.

Moreover, according to the results in this study, certain days before the announcement reveal slightly positive signals, on average. This phenomenon may occur because some information about the ESOP announcement has leaked out to the investors, who are trading on insider information. These investors (insiders) believe that ESOP adoptions will increase value for the shareholders and therefore start taking long positions of the company's stocks.

However, the time period after the event day shows a continuous trend of statistically significant negative abnormal returns. In other words, investors receive the new information negatively and start taking short positions. Clearly, this indicates that the shareholder, on an average, perceives the information about introductions of ESOP as negative.

Figure 2: Average and cumulative abnormal returns for all samples

This figure shows average abnormal returns and cumulative abnormal returns by event day of all samples in both short-term (t-20 to t+20) and long-term (t-20 to t+1 year) horizons. Estimated returns are estimated based on Market model. Panel A shows the average abnormal returns and the cumulative abnormal returns during t–20 to t+20, short-term horizon, while Panel B shows the abnormal returns and the cumulative abnormal returns during t–20 to t+1 year, long-term horizon.

Panel A : Average and cumulative abnormal returns for all samples during t – 20 to t + 20
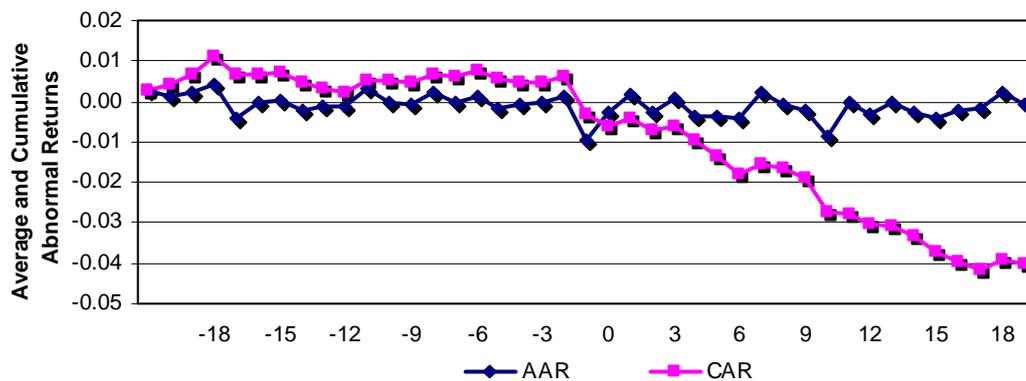
Panel B : Average and cumulative abnormal returns for all samples during t – 20 to t + 1 year
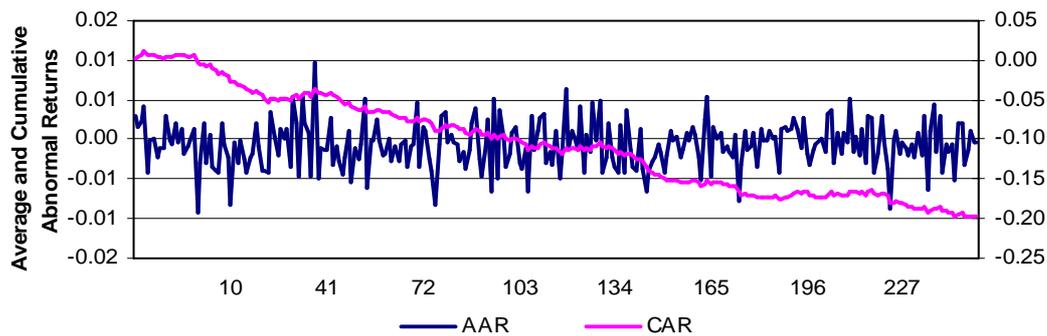
To gain a greater insight on the impact of ESOP adoptions on shareholder wealth, the results are also reported for the other divisions of the samples. In the following parts, I am trying to find out which factor (s) might explain the outcome of the event study, in term of market reaction.

As I hypothesize in null hypothesis 3 and 4 that there are no differences between the consequences of the adoptions of ESOP with different characteristics and also for the sponsoring companies in different types of business, this paper then reports the results of the abnormal returns after ESOP adoptions separately by characteristics, size and discount, of ESOP, and also types of business of the sponsoring companies.

Despite of the fact that the sizes of the sub samples are relatively small, I find it is interesting to show the results for the sub groups as they will shed some light on the overall question of ESOP.

5.2.1 Abnormal returns by size of ESOP

The first factor examined is the size of ESOP issued. In order to compare the different groups, ESOP with size less and greater than mean[7], AAR and CAR during the event period for each group and also the difference between them are

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[7] *Note that the results are also the same when the median is used, instead of mean, as the criteria to categorize the size of ESOP into two groups.*

calculated and tested for the statistical significance[8]. According to the results, the market reacts statistically significantly more negatively to the large size ESOP, when compares to the small ones. See Figure 3. This can probably be explained by the impact of the larger dilution effect. As the ESOP issuances increase number of shares available in the market, the bigger the ESOP size, the more the impact of the dilution effect since the substance value and profits of firms have to be divided among more shares. Also, in this situation, the existing shareholders might believe that the ESOP issued is too large, which may perhaps cause their authority in the companies decrease too much. Therefore, investors react negatively to the ESOP issuances.

Figure 3: Average and cumulative abnormal returns by size of ESOP

This figure shows average abnormal returns and cumulative abnormal returns separated by size of ESOP during the event period (t-20 to t+20). Estimated returns are estimated based on Market model. Panel A and Panel B show, respectively, the average abnormal returns and the cumulative abnormal returns of ESOP with different sizes.

Panel A : Average abnormal returns separated by size during the event period

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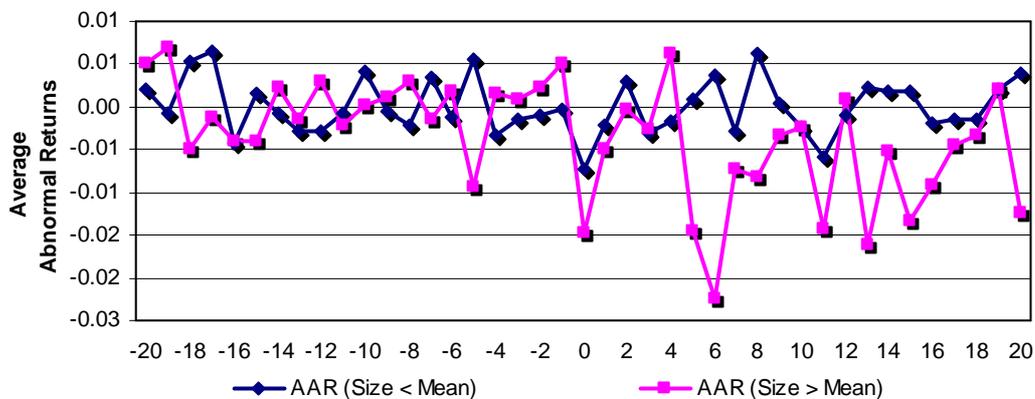
[8] *The results are reported in Table 5A in Appendix A.*

Panel B : Cumulative abnormal returns separated by size during the event period
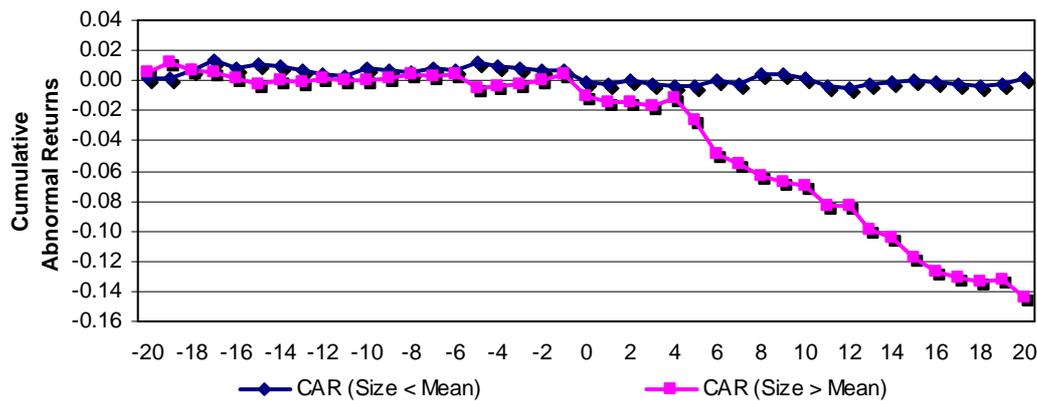
5.2.2 Abnormal returns by discount of ESOP

The second factor investigated in this study is the discount of ESOP issued. For the discount factor, the samples are classified into two groups, K < S and K > S, where K and S denote, respectively, the strike price of ESOP warrant and the closing price of the underlying stock on day t-1. Again, in order to compare the different groups, AAR and CAR during the event period for each group and also the difference between them are calculated and tested for the statistical significance[9]. By examined separately, I found that, as shown in Figure 4, the market responds positively to the ESOP adoptions with K > S, while reacts negatively to those with K < S. Also, the difference of the consequences, in term of market reaction, between these two groups is statistically significant.

Moreover, in order to test whether the positive abnormal return of the ESOP adoptions with K > S is statistically significant or not, I, again, test for the statistical significance of CAR of ESOP with K > S during the event period. The results show non-existence of the statistically significant positive abnormal return after the adoption. [10]

Intuitively, the fact that the market reacts statistically significantly optimistically to the ESOP adoptions with K > S, when compares to those with K > S can be explained by that, as noted earlier, the value of warrants increase as the

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[9] *The results are reported in Table 6A in Appendix A.*
[10] *The results are reported in Table 7A in Appendix A.*

underlying stock's price increases and warrants will have zero value if the underlying stock's price is less than the exercise price. Therefore, in order to create an incentive to dramatically increase the value of the firm, the sponsoring companies should grant the warrant ESOP that have the exercise price greater than the underlying stock's price as of the ESOP issuing date. By doing this, those warrants will have zero value on that date (out-of-the-money warrant ESOP). As a result, the sponsoring companies can then create a motivation to its employees to improve their performance in order to make the company's stock price increase until higher than the exercise price, where they can profitably exercise their warrants. Accordingly, for the ESOP with $K > S$, the results show an improvement on the sponsoring company's stock price after ESOP adoption, which can remove the impact of the dilution effect, occurred from ESOP issuing. Also, it is important to note that they must be very deep out-of-the-money warrant ESOP to ensure the employees only profit when their stock outperforms the market.

Conversely, issuing the warrant ESOP with the exercise price less than the underlying stock's price on the ESOP issuing date seems not to generate any incentive to its employees as those warrants already have values on that date (in-the-money warrant ESOP). Then, employees don't have to put any efforts in order to get benefits. This can be viewed as a free gift. Thus, there is no improvement on the sponsoring company's stock price, regarding the ESOP announcements, found in this case.

## Figure 4: Average and cumulative abnormal returns by discount of ESOP

This figure shows average abnormal returns and cumulative abnormal returns separated by discount of ESOP during the event period (t-20 to t+20). Estimated returns are estimated based on Market model. Panel A and Panel B show, respectively, the average abnormal returns and the cumulative abnormal returns of ESOP with different categories of discount.

Panel A : Average abnormal returns separated by discount during the event period
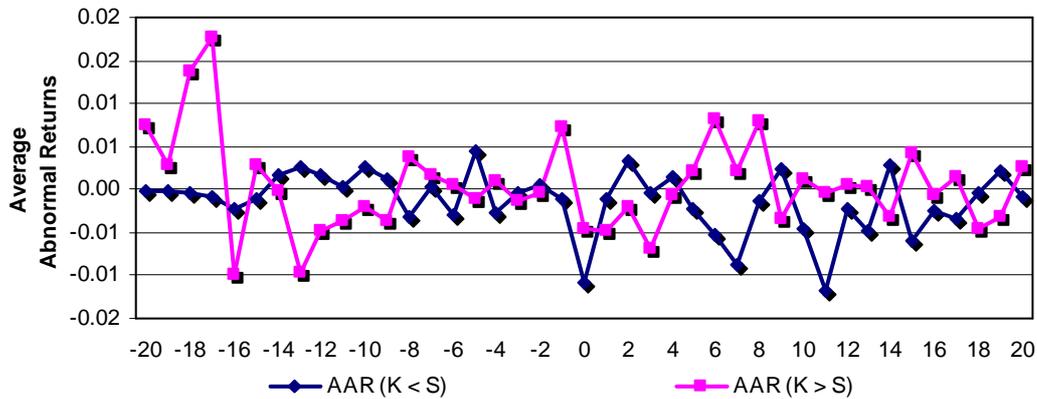
Panel B : Cumulative abnormal returns separated by discount during the event period
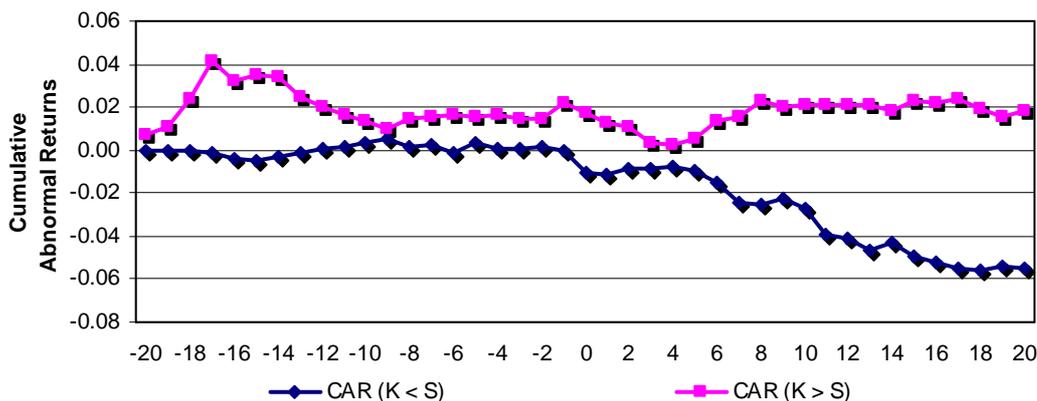
5.2.3 Abnormal returns by type of business of the sponsoring company

The last factor I explore is whether companies within different types of business respond in the same way to the announcement of ESOP, in term of market reaction. To study this, I classify the ESOP sponsoring companies into two sectors, services sector and real sector. Yet again, in order to compare the different groups, AAR and CAR during the event period for each group and also the difference between them are calculated and tested for the statistical significance. Figure 5 indicates that the ESOP adopted in the services sector seems to generate better outcomes than those in the real sector. However, those differences are not statistically

significant[11]. In other word, it can possibly be concluded that the market reacts to both sectors in the same negative direction.

Figure 5: Average and cumulative abnormal returns by type of business

This figure shows average abnormal returns and cumulative abnormal returns during the event period (t-20 to t+20) separated by type of business that the ESOP firms are in. Estimated returns are estimated based on Market model. Panel A and Panel B show, respectively, the average abnormal returns and the cumulative abnormal returns of ESOP issued by the sponsoring companies in different types of business, services sector and real sector.

Panel A : Average abnormal returns during the event period separated by type of business
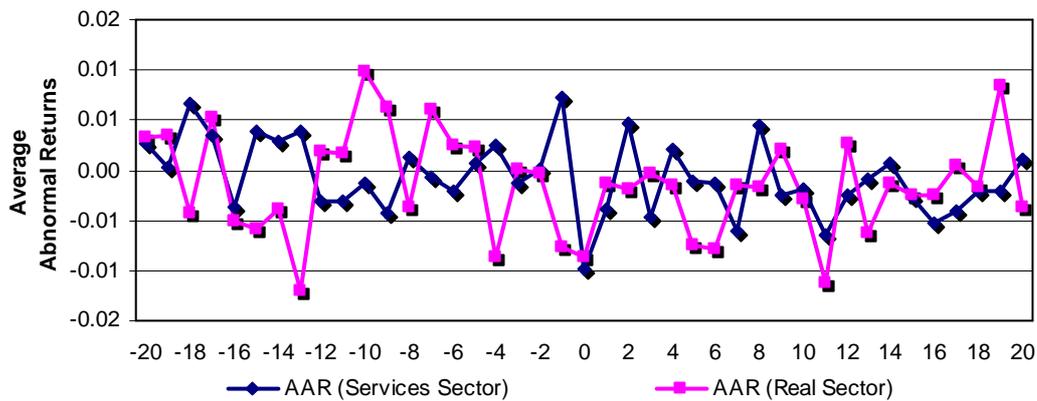
Panel B : Cumulative abnormal returns during the event period separated by type of business

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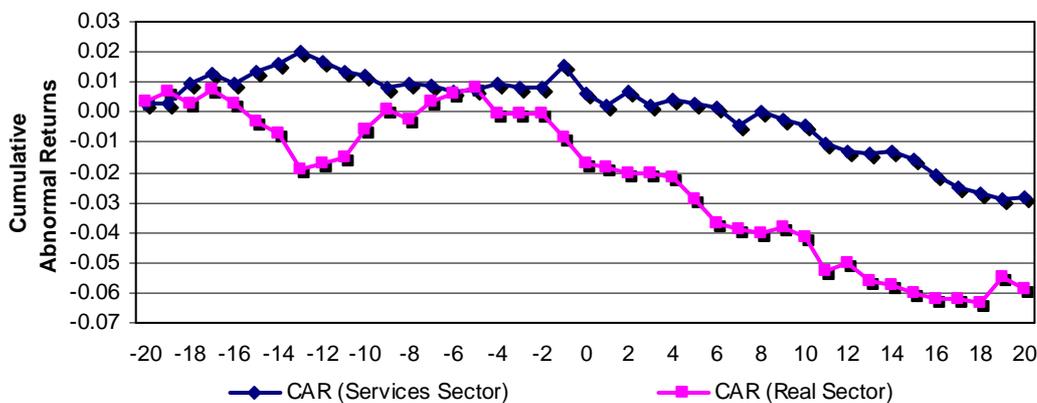
[11] *See the results of statistical testing in Table 8A in Appendix A.*

In the following part of the section, I will give the conclusion and some possible explanations to the outcome of this study, in term of market reaction.

In summary, the overall results of the study illustrate that the shareholders, on average, perceive the information about introductions of ESOP as negative. Although the results show positive market reaction on the out-of-the-money warrant ESOP, it is not statistically significant. The underlying reasons for the results may be as follows.

Dilution effect

When companies issue ESOP, the number of stocks increases. This leads to dilution. Dilution means that the substance value and profits are to be divided among more shares **(Karlsson, 1999)**. Moreover, by considering the warrant ESOP, the potential dilution effect is created not just by the warrant ESOP issued in the current period but also by the cumulative warrants outstanding at the firm. The exercise of warrants will increase the number of shares at some future date, but expectations of that happening will affect the value per share today. While some of these warrants may be out-of-the-money, there is still a probability that they will be exercised in the future since warrants, same as options, have time value. Therefore, investors react negatively to the ESOP issuances.

Implication in measuring performance

One possible explanation for the negative abnormal return after ESOP adoption is that the shareholders may also believe that the ESOP do not always guarantee the performance improvement of the sponsoring firms. This is due to the fact that, generally, the ESOP holders have little influence on several factors such as inflation, exchange rates, political policies, and the economical ups and downs. Those are all external factors and uncontrollable. **Akhigbe, Madura & Tucker (1996)** have shown that approximately 50 percent of the variance in a company's stock movement depends on industrial factors in combination with trends in the stock market and micro-economic assumptions.

Possibility of dividend decreasing

By this, the shareholders may think that the executives with ESOP will be stimulated to keep dividend payments low since dividend payments lower the stock market price and also the warrant value. **Lambert, Lanen & Larcker (1989)** studied the relationship between the introduction of executives' option programs and the changes of the dividend policy on the US market and found statistically significant reductions in dividend payments after the introduction of stock option programs. This indicates that the ESOP can affect the dividend policies of the sponsoring companies. Moreover, this explanation is also consistent with the study by **Asawarachan (2001)**, who reported that ESOP in Thailand not only had no statistically significant impact in term of reducing agency problem but also lessened the shareholders' benefits by shortening dividend payments after the adoptions.

Unsatisfactory expectations

One reason for the negative reaction from the stockholders could be the fact that some investors had expected a different employee stock-option program. To decide if the suggested ESOP are regarded as negative, the market must value the news according to previous expectations. For instance, the investors might have expected a totally different program for the company, and therefore, were disappointed by the one introduced. This does not mean that the introduction of the ESOP was regarded as unsatisfactory by the investors but probably not as good as they expected, which in turn brings the stock price down. This is some kind like commitment implications. It can be understood by that the investors are familiar with the company's plans to introduce an ESOP but at the last minute the company decides to rearrange and not fully proceed with the previous plans, which will probably cause confusion among the investors. Therefore, if investors have a positive attitude to ESOP and also believe that they enhance shareholder wealth, companies that fail to meet the expectations will likely have negative effects on their stock prices.

Negative aspect of investors on ESOP adoptions

In response to the past corporate governance failures of Enron[12] and Worldcom[13], where employee stock options are used as a tool for accounting manipulation, investors may perceive the ESOP adoptions negatively and may be reluctant to invest in the stock of those ESOP sponsoring firms. Therefore, this may cause the downward market response.

Conclusively, I identify that the market reacts most optimistically to the small size out-of-the-money warrant ESOP. Also, there is no difference in the responses of sponsoring companies within different types of business to the announcement of ESOP, in term of market reaction. However, based on my study, I really cannot notify the causes of these outcomes exactly as the investigating period is too short and also the sample size is too small.

5.3 Operating performance

The comparison of performance before and after ESOP adoptions for the full sample of ESOP firms is shown in Table 1[14]. The differences between pre- and post-ESOP adoption operating performances are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test.

In null hypothesis 2, I hypothesize that the adoptions of ESOP in Thailand do not affect the corporate financial performance of the sponsoring firms. The results shown in Table 1 indicate that, in overall, there is no statistically significant change found, except for ROA that falls statistically significantly, implying that the uses of business assets of the sponsoring companies are less efficient after the ESOP adoptions. The results found are inconsistent with those of **Kumbhakar and Dunbar (1993)**, **Conte and Svejnar (1990b)**, **Conte and Tannenbaum (1978)**, **Bloom**

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[12] *See more detail about Enron case at http://archives.cnn.com/2002/US/01/12/enron.qanda.focus/ and http://en.wikipedia.org/wiki/Enron.*

[13] *See more detail about Worldcom case at http://www2.resbank.co.za/internet/Publication.nsf/LADV/9CC88CA6D414106142256D24004D1B7 D/$File/Annexure_D2.pdf and http://en.wikipedia.org/wiki/Worldcom*

[14] *See summary statistics for the entire sample in term of financial performance in Table 9A in Appendix A*

(1985), **Rosen and Quarrey (1987)** and **Rosen (1989) and Cohen and Quarrey (1986)**, who reported the positive relationship between the ESOP adoptions and the firm's performance.

However, the outcomes are still consistent with those of **Blasi et al. (1996)**, **Jensen and Meckling (1979)**, **Bradley et al. (1990)**, **Kruse (1992 and 1993)** and also **Dunbar and Kumbhakar (1992)**, who reported that the ESOP adoptions do not improve the firm's performance but may instead reduce.

Table 1: Performance of ESOP firms before and after ESOP adoptions

This table reports the effect of ESOP on the firm's performance, measured by key financial ratios described earlier, NPM, ROA, ROE, TATO and Q. All key financial ratios of a quarter prior to the ESOP adoption (t-1) are used for comparison against the average post-adopted figures for quarter t+1 to quarter t+6. Note that, in order to avoid an impact of industry trend, the ratios used for comparison are the sector-adjusted ratios. That is, all key financial ratios of the ESOP companies are deducted by the average sector figures, defined by the SET. Also, the differences of operating performance between pre- and post- ESOP adoptions are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test as noted before.

Ratios	Before ESOP Adoption	After ESOP Adoption	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
NPM	1.35%	0.54%	-0.80%	-0.8548	1.0604
ROA	-0.04%	-0.05%	-0.01%	-1.8329*	1.2585
ROE	-0.02%	-0.12%	-0.10%	-1.4316	0.8560
TATO	-0.41%	-0.46%	-0.05%	-1.5695	0.1086
Q	0.33	0.23	-0.10	-1.4033	0.4599

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.

Again, to gain a greater insight on the impact of ESOP adoptions on the financial performance, the results are also reported for the other divisions of the samples as the previous part. In the following parts, I am trying to find out which factor (s) might explain the outcome of the event study, in term of, financial performance.

As I hypothesize in null hypothesis 3 and 4 that there are no differences between the consequences of the adoptions of ESOP with different characteristics and also for the sponsoring companies in different types of business, this part then reports the results of the financial performance before and after ESOP adoptions separately by characteristics, size and discount, of ESOP, and also types of business of the sponsoring companies.

5.3.1 Operating performance by size of ESOP

Same as the previous part, the first factor examined is the size of ESOP issued. In order to compare the different groups, ESOP with size less and greater than mean[15], all key financial ratios for each group are calculated for both pre- and post-ESOP adoptions. Also, the difference between pre- and post-ESOP adoptions together with the difference between each group of samples are calculated and tested for the statistical significance.

According to the results[16], even examined separately by size of ESOP, no statistically significant changes or differences in financial performance found for NPM, TATO and Q. However, for ROA and ROE, the drop in ROA and ROE of the large size ESOP is statistically significant but not for the small ones and the impacts on ROA and ROE of two groups are statistically significantly different.

5.3.2 Operating performance by discount of ESOP

The second factor investigated in this study is the discount of ESOP issued. For the discount factor, the samples are classified into two groups, K < S and K > S, where K and S denote, respectively, the strike price of ESOP warrant and the closing price of the underlying stock on day t-1. Again, in order to compare the different groups, all key financial ratios for each group are calculated for both pre- and post-ESOP adoptions. Also, the difference between pre- and post-ESOP adoptions together with the difference between each group of samples are calculated and tested for the statistical significance. The results[17] indicate no statistically significant changes in the financial performance before and after the ESOP adoptions for both groups. Also, there is no statistically significant difference of the ESOP adoption consequences between these two groups.

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[15] *Note that the results are also the same when the median is used, instead of mean, as the criteria to categorize the size of ESOP into two groups.*

[16] *See Table 10A in Appendix A.*

[17] *See Table 11A in Appendix A.*

5.3.3 Operating performance by type of business of the sponsoring company

The last factor I explore is whether companies within different types of business respond in the same way to the announcement of ESOP, in term of financial performance. To study this, I classify the ESOP sponsoring companies into two sectors, services sector and real sector. Yet again, in order to compare the different groups, all key financial ratios for each group are calculated for both pre- and post-ESOP adoptions. Also, the difference between pre- and post-ESOP adoptions together with the difference between each group of samples are calculated and tested for the statistical significance. According to the results[18], there are no statistically significant changes in the financial performance before and after the ESOP adoptions for all financial ratios, except for the statistically significant drops in ROA, ROE and TATO of the sponsoring companies in real sector. Moreover, the results show no statistically significant difference of the ESOP adoption consequences between these two groups.

In the following part of the section, I will give a conclusion and some possible explanations to the outcome of this study, in term of financial performance.

In summary, the overall results of the study demonstrate that the ESOP adoptions do not improve the performance of the sponsoring firms, but instead seem to lessen. The underlying reasons for the results may be as follows.

Nature of ESOP holders

Even by definition, ESOP increases the percentage of 'insider owners' in a company (**Pugh et al., 2000**), there are two prospects of this scheme. Firstly, if the new owners truly have decision-making authority, then, according to agency theory, corporate performance should increase. Secondly, if the employee owners are with little or no decision-making authority, management may gain more control (**Pugh et al., 2000**). That is, the employees, who are hired and evaluated by management, will align themselves with management due to their concerns about job security.

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[18] *See Table 12A in Appendix A.*

Accordingly, in this case, ESOP would then facilitate management entrenchment and, therefore, possibly lower corporate performance (**Chang and Mayers, 1992**).

Hence, the statistically insignificant changes in NPM, ROE, TATO and *Q* and also the statistically significant drop in ROA after the ESOP adoption found in this study may possibly be due to the fact that the ESOP holders for the sample firms have little or no decision-making authority, there is no improvement in corporate performance, accordingly, as suggested by **Chang and Mayers (1992)**.

ESOP as a group-based reward system

As suggested by **Blasi et al. (1996)**, employee ownership might constrain firm performance since individual employee has an incentive to shirk in a stock ownership compensation scheme as it is a group-based reward system. This is an employee free-rider problem in group compensation schemes. Therefore, the financial performance after the ESOP adoption presents no improvement.

ESOP as delayed compensation

Jensen and Meckling (1979) assert that employee ownership distorts the firm's production function due to an over emphasis on labor and delayed compensation reduces employee motivation. Also, firm investment and growth may be limited by employee-owner concern regarding equity maintenance (**Bradley et al., 1990**). By adopting the warrant ESOP, even can help retain valuable employees, it takes time from the grant date to the date that the warrants "vest". As a result, there is no development in the companies' financial performance after the ESOP adoptions.

Moreover, as ESOP is a non-cash form of compensation, to apply ESOP instead of cash compensation may possibly indicate the lack of cash of the sponsoring firms. This may be perceived that those companies can ill afford to pay costly salaries to its employees, resulting to the non-improved performance.

Again, it has to be noted that, based on my study, I cannot accurately tell the causes of these outcomes due mainly to the limitations on the investigating period, which is too short and also on the sample size employed, which is too small.

In sum, the results of this study can be summarized as follow.

	Market reaction	*Firm performance*
Overall	The shareholders, on average, perceive the information about introductions of ESOP as negative.	No statistically significant change found after the ESOP adoption, apart from ROA that falls statistically significantly.
Size	The market reacts statistically significantly more negatively to the large size ESOP.	No statistically significant differences in firm performance found for NPM, TATO and Q. However, the impacts on ROA and ROE of the companies issuing the small size ESOP seem statistically significantly better than those issuing the large size ESOP.
Discount	The market responds positively to the ESOP adoptions with $K > S$ (out-of-the-money warrant ESOP), while reacts negatively to those with $K < S$ (in-the-money warrant ESOP).	No any statistically significant differences in firm performance found between these two groups.
Type of business	The market reacts to the ESOP adoptions of both sectors, services sector and real sector, in the same negative direction.	No any statistically significant differences in firm performance found between these two groups.

6. Conclusion

This study investigates the consequences of the ESOP adoptions in two prospects, market reaction and financial performance. In addition, I extend existing studies by also examining how characteristics of ESOP, size and discount, affect the consequences of the adoptions and investigating whether ESOP issuances have different impacts to the sponsoring firms in different types of business.

For the market reaction prospects, the overall results of the study show that the shareholders, on average, perceive the information about introductions of ESOP as negative, leading to the statistically significant negative abnormal return after the adoptions. Moreover, by examining separately between different characteristics of ESOP and also types of business of the sponsoring firms, I identify that the market reacts most optimistically to the small size out-of-the-money warrant ESOP. Also, there is no difference in the responses of sponsoring companies within different types of business to the announcement of ESOP, in term of market reaction.

For the financial performance prospects, in overall, there is no statistically significant change found after the ESOP adoption, apart from ROA that falls statistically significantly, implying that the uses of business assets of the sponsoring companies are less efficient after the adoptions. Also, by examining the financial performance separately between different characteristics of ESOP and also types of business of the sponsoring firms, I found no statistically significant difference among them; except for the impacts on ROA and ROE of the companies issuing the small size ESOP that seem statistically significantly better than those issuing the large size ESOP.

Importantly, it has to be emphasized that these results are subject to a number of significant limitations. First, even increasing, the adoptions of ESOP in Thailand have not been widespread, thus, this study faces a limitation of sample size employed, which might cause the less reliable results when compares to other studies in other countries such as in US. Second, as this study removes an industry effect from performance measures by subtracting company financial performance ratios by sector's figures. Nevertheless, some industries in the SET comprises of companies, broadly different in their core business. Therefore, the sector-adjusted ratios might offer unclear results. Third, due to the fact that this study mainly concentrates on the consequences of ESOP adoptions, therefore, other factors affecting market reaction and corporate financial performance are not covered. This might also cause imprecise results.

These results have implications for firms considering issuing ESOP as its consequences in various directions have been investigated here, which may help managements make decision regarding employee compensation strategy. Also, as ESOP has become increasingly prevalent, it has become more and more important for managers and investors to properly analyze them. Moreover, from the study, the negative consequences after the ESOP adoption may reflect the unique characteristic of Thai firms. Hence, these results may also assist regulators in developing policies in order to protect both investors and sponsoring companies, regarding the ESOP issuances.

Note, however, that this study does not provide an answer about whether Thai firms have agency cost or how serious agency problems are in Thailand. These are the interesting topics to investigate further.

7. Suggestion for further research

As noted earlier, since this study does not provide an answer about whether Thai firms have agency cost or how serious agency problems are in Thailand, these are the interesting topics for further study.

Also, one interested in this subject could use my study as a base and then collect more data. Because of the explosion in introductions of ESOP over the last years, in the near future a much greater sample could possibly be collected. Therefore, a greater sample would increase the validity and make the study even more interesting.

Another interesting suggestion for further research is to distinguish between the level of size and discount of ESOP issued. More levels can be classified if the sample size is adequate. Also, despite of size and discount, one may investigate the impact of other characteristics of ESOP as the way ESOP is structured plays an important role for the shareholders.

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Table 1A: The ESOP issuances during the studying period

This table provides some information of the ESOP issuances separated by types of ESOP issued, stocks, warrants or both, years of issuances, and also industries that the ESOP sponsoring companies are classified, according to the SET, during the studying period; where "w" denotes "warrant" and "s" denotes "stock".

Industry/Sector	2001		2002		2003		2004			2005		Total		
	W	S	W	S	W	S	W	S	Both	W	S	W	S	Both
Agro & Food Industry														
- Food and Beverage	-	-	-	-	-	-	1	-	-	-	-	1	-	-
Consumer Products														
- Home & Office Products	-	-	-	-	-	-	1	-	-	-	-	1	-	-
Financials														
- Banking	3	-	2	-	1	-	1	-	-	-	-	7	-	-
- Finance and Securities	1	-	2	-	3	-	2	-	-	-	-	8	-	-
Industrials														
- Automotive	-	-	-	-	-	-	-	-	-	1	-	1	-	-
- Packaging	-	-	-	-	-	-	1	-	-	-	-	1	-	-
- Petrochemicals & Chemicals	-	-	-	-	-	-	1	-	-	-	-	1	-	-
Property & Construction														
- Property Development	-	-	2	-	2	1	3	-	-	2	1	9	2	-
Resources														
- Energy & Utilities	1	-	1	-	1	-	3	-	-	-	-	6	-	-
- Mining	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Services														
- Commerce	-	1	-	-	-	-	2	-	-	1	-	3	1	-
- Media & Publishing	2	-	1	-	1	-	1	-	-	1	-	6	-	-
- Transportation & Logistics	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Technology														
- Electronic Components	-	-	2	-	-	-	1	-	-	-	-	3	-	-
- Information & Communication Technology	-	-	5	-	2	-	3	-	-	4	-	14	-	-
Total	7	1	15	-	10	1	20	1	1	9	1	61	4	1

Figure 1A: ESOP issuances in the SET separated by industries

This figure shows the proportion of the ESOP issuances during the studying period separated by industries that the sponsoring firms are in, according to the classification by the SET.
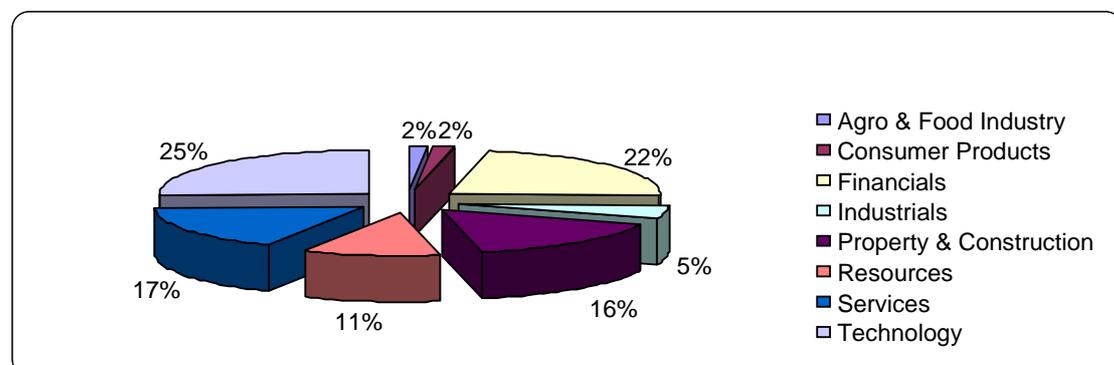
Table 2A: Summary statistics of samples

This table reports summary statistics of samples used in this study, including mean, median, minimum and maximum amounts of total assets, total equity and total market value of the sponsoring firms at the end of quarter t (the quarter that ESOP were issued). Panel A shows descriptive statistics for all samples, while Panel B shows descriptive statistics by industries.

Panel A : Descriptive statistics for all samples

		Total Assets (in THB million)	Total Equity (in THB million)	Total Market Value of Firm (in THB million)
All samples	Mean	48,937	12,101	32,756
(43 firms / 66 samples)	Median	12,051	3,857	7,419
	Minimum	592	(51)	163
	Maximum	774,385	69,336	288,870

Panel B : Descriptive statistics classified by industries

Industry (No.of firms / No.of samples)		Total Assets (in THB million)	Total Equity (in THB million)	Total Market Value of Firm (in THB million)
Agro & Food Industry (1 / 1)	Mean	12,429	10,245	19,931
Consumer Products (1 / 1)	Mean	2,585	2,045	2,760
Financials (8 / 15)	Mean	123,074	8,007	12,801
	Median	21,525	4,002	6,781
	Minimum	1,094	618	1,386
	Maximum	774,385	35,075	61,166
Industrials (3 / 3)	Mean	13,374	3,455	15,826
	Median	2,182	927	824
	Minimum	1,411	854	743
	Maximum	36,530	8,583	45,913
Property & Construction (6 / 11)	Mean	17,198	8,838	24,175
	Median	13,626	5,131	10,258
	Minimum	2,018	453	823
	Maximum	38,613	22,238	82,448
Resources (5 / 7)	Mean	39,376	21,736	57,661
	Median	34,963	8,716	9,228
	Minimum	1,039	824	1,459
	Maximum	82,740	52,254	194,670
Services (10 / 11)	Mean	20,840	6,382	12,247
	Median	2,339	1,494	1,438
	Minimum	592	106	163
	Maximum	196,781	59,172	98,573
Technology (9 / 17)	Mean	37,327	19,783	64,436
	Median	11,967	6,151	11,047
	Minimum	815	(51)	1,028
	Maximum	121,443	69,336	288,870

Table 3A: Average abnormal returns for all samples

This table reports event study results on average abnormal returns (AAR) for all samples during the event period. The market model is used to calculate the estimated return of each stock during the observing period with the estimation period starting on day t -200 and ending with day t -21. The actual return minus the estimated return during the event period is the abnormal return (AR). Because the purpose of this study is to examine in general the effect of an ESOP on the value of the firm's stock, this research analyses the average effect across firms in relation to their ESOP announcement date, which is the average abnormal return (AAR), the average value of every stock's abnormal return on some day in the observing period. To test the AAR whether it is statistically significant or not, I apply both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test. By using Wilcoxon Sign Rank Test, the restriction on distribution assumption can be ignored, while t-test assumes the sample follows normal distribution.

Event day	AAR	t-statistics	Wilcoxon Sign Rank Test (Z)	Event day	AAR	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	0.0029	0.7634	0.1278	1	-0.0029	-1.0384	2.0186**
-19	0.0015	0.4638	0.7219	2	0.0020	0.6298	0.2491
-18	0.0024	0.8886	0.4024	3	-0.0029	-1.4846	1.7823*
-17	0.0042	1.2448	2.0953**	4	0.0007	0.2815	0.1916
-16	-0.0042	-1.4157	1.7503*	5	-0.0035	-1.0383	1.5842
-15	0.0000	-0.0052	0.6899	6	-0.0039	-0.8250	0.3450
-14	0.0002	0.0657	0.6516	7	-0.0042	-1.7084*	1.8973*
-13	-0.0024	-0.7583	1.5140	8	0.0021	0.7476	0.7410
-12	-0.0012	-0.4617	0.7730	9	-0.0007	-0.3785	0.7155
-11	-0.0011	-0.5414	0.8943	10	-0.0024	-1.1539	1.4245
-10	0.0031	0.9888	0.5622	11	-0.0084	-2.5416**	2.6574***
-9	-0.0001	-0.0262	0.0064	12	-0.0004	-0.2045	0.7410
-8	-0.0007	-0.3270	0.2811	13	-0.0029	-1.0029	0.7282
-7	0.0020	0.7865	0.7793	14	-0.0001	-0.0348	0.9965
-6	-0.0004	-0.1448	0.5430	15	-0.0026	-1.0355	0.6835
-5	0.0012	0.2625	0.6324	16	-0.0041	-1.7064*	1.8909*
-4	-0.0019	-0.7492	1.0860	17	-0.0022	-0.9706	1.4693
-3	-0.0007	-0.3274	0.0511	18	-0.0019	-0.9227	1.0540
-2	-0.0001	-0.0234	0.2491	19	0.0021	0.5982	0.0958
-1	0.0013	0.4722	0.0639	20	-0.0008	-0.2553	0.5558
0	-0.0093	-3.6142***	3.4048***	1 year	-0.0003	-0.0961	0.3769

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
  Day 0 represents an event day (announcement day).

Table 4A: Cumulative abnormal returns for all samples

This table reports event study results on cumulative abnormal returns (CAR) for all samples. The average cumulative abnormal return reflects the cumulative impact of the ESOP announcement in the market. This CAR is estimated for varied intervals, including the announcement day (t = 0), on which ESOP was approved and disclosed by the SEC. The behavior of the cumulative average residuals reveals the shareholders' perception of ESOP implementation as reflected by stock prices. Again, to test the cumulative abnormal return whether it is statistically significant or not, I apply both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test. By using Wilcoxon Sign Rank Test, the restriction on distribution assumption can be ignored, while t-test assumes the sample follows normal distribution. Panel A shows CAR for all samples during the event period, while Panel B shows CAR for all samples with varied intervals

Panel A : Cumulative abnormal returns for all samples during the event period

Event day	CAR	t-statistics	Wilcoxon Sign Rank Test (Z)	Event day	CAR	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	0.0029	0.7634	0.1278	1	-0.0060	-0.5239	1.1115
-19	0.0044	0.8864	0.2811	2	-0.0040	-0.3218	1.2265
-18	0.0068	1.2084	0.8943	3	-0.0069	-0.5571	1.4054
-17	0.0110	1.7652*	1.6353	4	-0.0062	-0.4812	1.1371
-16	0.0068	1.0341	0.6516	5	-0.0097	-0.6965	1.5842
-15	0.0068	0.9168	0.5494	6	-0.0136	-0.8676	1.5906
-14	0.0070	0.8351	0.3450	7	-0.0178	-1.1516	1.9995**
-13	0.0046	0.5250	0.0128	8	-0.0157	-0.9947	1.5459
-12	0.0035	0.3909	0.1597	9	-0.0164	-1.0266	1.5395
-11	0.0023	0.2577	0.3513	10	-0.0188	-1.1329	1.4756
-10	0.0054	0.6125	0.0830	11	-0.0271	-1.5910	1.8334*
-9	0.0053	0.5839	0.2300	12	-0.0276	-1.6383	1.9356*
-8	0.0047	0.4817	0.1980	13	-0.0305	-1.7543*	1.8717*
-7	0.0067	0.6911	0.2236	14	-0.0306	-1.6814*	1.9100*
-6	0.0063	0.6391	0.1022	15	-0.0332	-1.7310*	1.9739**
-5	0.0076	0.7247	0.3066	16	-0.0373	-1.9332*	2.1911**
-4	0.0057	0.5401	0.1405	17	-0.0395	-1.9946*	2.2869**
-3	0.0049	0.4778	0.1342	18	-0.0414	-2.1462**	2.2933**
-2	0.0049	0.4582	0.1214	19	-0.0393	-1.9861*	1.9484*
-1	0.0062	0.5647	0.0192	20	-0.0401	-1.8815*	1.9164*
0	-0.0031	-0.2853	0.8432	1 year	-0.1972	-2.2930**	2.0250**

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
  Day 0 represents an event day (announcement day).

Panel B : Cumulative abnormal returns for all samples with varied intervals

Event windows	CAR	t-statistics	Wilcoxon Sign Rank Test (Z)
(-20, 20)	-0.0401	-1.8815*	1.9164*
(-10, 10)	-0.0211	-1.5339	1.6353
(-1, 1)	-0.0109	-2.5856**	2.5041**

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
  Day 0 represents an event day (announcement day).
  CAR(t1, t2) is the cumulative abnormal returns for each event windows.

Table 5A: Average and cumulative abnormal returns by size of ESOP

This table reports event study results on average abnormal returns (AAR) and cumulative abnormal returns (CAR) by size of ESOP issued during the event period. In this paper, the size of ESOP is defined as follow:

Size of ESOP = No. of stocks appropriated for ESOP / Total no. of outstanding stocks

To investigate whether the different sizes of ESOP affects in different ways to the consequences of the adoptions, I categorize the size of ESOP issued into two groups, ESOP with size less than mean (Size < Mean) and ESOP with size greater than mean (Size > Mean). Then, the consequences are tested separately by different categories using those methodologies described earlier. Also, the differences of AAR and CAR between two groups are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test. By using Wilcoxon Sign Rank Test, the restriction on distribution assumption can be ignored, while t-test assumes the sample follows normal distribution. Panel A and B report AAR and CAR, respectively.

Panel A : Average abnormal returns separated by size during the event period

Event day	AAR (Size < Mean)	AAR (Size > Mean)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	0.0021	0.0050	-0.0030	0.3490	0.6231
-19	-0.0007	0.0070	-0.0078	1.0962	0.2832
-18	0.0054	-0.0049	0.0103	1.7568*	1.6853*
-17	0.0064	-0.0013	0.0077	1.0350	0.4815
-16	-0.0042	-0.0040	-0.0002	0.0316	1.1613
-15	0.0016	-0.0041	0.0057	1.0811	1.4445
-14	-0.0007	0.0024	-0.0031	0.4808	0.1133
-13	-0.0028	-0.0014	-0.0013	0.1869	0.1841
-12	-0.0028	0.0030	-0.0059	1.0650	1.6003
-11	-0.0008	-0.0020	0.0013	0.2719	0.1558
-10	0.0042	0.0003	0.0039	0.5716	0.7223
-9	-0.0005	0.0010	-0.0015	0.3301	0.5806
-8	-0.0022	0.0031	-0.0052	1.1540	1.1896
-7	0.0034	-0.0014	0.0048	0.8491	0.8356
-6	-0.0012	0.0017	-0.0029	0.5324	0.1699
-5	0.0055	-0.0093	0.0148	1.4221	1.6003
-4	-0.0033	0.0017	-0.0050	0.8979	0.2124
-3	-0.0014	0.0008	-0.0022	0.4336	0.6231
-2	-0.0010	0.0022	-0.0032	0.5561	0.1275
-1	-0.0002	0.0052	-0.0054	0.8712	0.3824
0	-0.0072	-0.0147	0.0075	1.3236	1.3029
1	-0.0021	-0.0049	0.0028	0.4608	0.0850
2	0.0029	-0.0002	0.0031	0.4411	0.1699
3	-0.0030	-0.0026	-0.0004	0.0868	0.2549
4	-0.0016	0.0064	-0.0080	1.5072	1.3879
5	0.0009	-0.0144	0.0153	2.1041**	2.4500**
6	0.0037	-0.0225	0.0261	2.6375**	2.2801**
7	-0.0029	-0.0073	0.0043	0.7927	1.4304
8	0.0062	-0.0082	0.0145	2.4577**	1.3312
9	0.0004	-0.0033	0.0037	0.9213	0.3824
10	-0.0023	-0.0024	0.0001	0.0216	0.2691
11	-0.0060	-0.0143	0.0084	1.1568	0.5523
12	-0.0010	0.0010	-0.0020	0.4125	0.1841
13	0.0024	-0.0161	0.0184	3.0172***	2.4925**

**Panel A : Average abnormal returns separated by size during the event period** (continued)

Event day	AAR (Size < Mean)	AAR (Size > Mean)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
14	0.0019	-0.0051	0.0070	1.0190	0.8356
15	0.0017	-0.0132	0.0150	2.8852***	2.4784**
16	-0.0020	-0.0092	0.0072	1.3772	0.6798
17	-0.0014	-0.0045	0.0031	0.6039	0.2832
18	-0.0013	-0.0032	0.0019	0.4115	0.0708
19	0.0021	0.0022	0.0000	0.0040	1.0055
20	0.0039	-0.0125	0.0163	2.3530**	1.5153
1 year	-0.0012	0.0021	-0.0033	0.5165	0.7789

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
Day 0 represents an event day (announcement day).

**Panel B : Cumulative abnormal returns separated by size during the event period**

Event day	CAR (Size < Mean)	CAR (Size > Mean)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	0.0021	0.0050	-0.0030	0.3490	0.6231
-19	0.0013	0.0121	-0.0108	0.9786	0.3541
-18	0.0067	0.0071	-0.0005	0.0373	0.0850
-17	0.0131	0.0058	0.0073	0.5234	0.2266
-16	0.0089	0.0018	0.0070	0.4805	0.8072
-15	0.0105	-0.0023	0.0127	0.7738	1.0622
-14	0.0098	0.0001	0.0097	0.5190	1.2038
-13	0.0070	-0.0013	0.0084	0.4271	1.1330
-12	0.0042	0.0017	0.0025	0.1264	0.5523
-11	0.0034	-0.0004	0.0038	0.1875	0.6798
-10	0.0076	-0.0001	0.0077	0.3936	0.8356
-9	0.0071	0.0009	0.0062	0.3039	0.7648
-8	0.0049	0.0040	0.0009	0.0434	0.4673
-7	0.0083	0.0026	0.0058	0.2686	0.5523
-6	0.0071	0.0043	0.0029	0.1300	0.3965
-5	0.0127	-0.0050	0.0177	0.7638	1.0480
-4	0.0093	-0.0033	0.0127	0.5425	1.0622
-3	0.0080	-0.0025	0.0105	0.4566	0.7931
-2	0.0070	-0.0003	0.0073	0.3088	0.9489
-1	0.0068	0.0049	0.0019	0.0777	0.9205
0	-0.0004	-0.0098	0.0094	0.3870	1.0763
1	-0.0025	-0.0147	0.0123	0.4812	1.1330
2	0.0004	-0.0150	0.0154	0.5566	0.8356
3	-0.0026	-0.0176	0.0150	0.5460	0.8072
4	-0.0042	-0.0112	0.0070	0.2445	0.1275
5	-0.0033	-0.0257	0.0224	0.7222	0.4957
6	0.0004	-0.0481	0.0485	1.4120	1.3171
7	-0.0026	-0.0554	0.0528	1.5653	1.7419*
8	0.0037	-0.0636	0.0673	1.9712*	1.7844*
9	0.0040	-0.0669	0.0710	2.0616**	2.0110**
10	0.0017	-0.0694	0.0711	1.9864*	1.7136*
11	-0.0043	-0.0837	0.0795	2.1687**	2.0252**
12	-0.0053	-0.0827	0.0775	2.1403**	2.0393**
13	-0.0029	-0.0988	0.0959	2.6048**	2.2801**
14	-0.0010	-0.1039	0.1029	2.6755***	2.3934**
15	0.0007	-0.1171	0.1179	2.9421***	2.6342***

Panel B : Cumulative abnormal returns separated by size during the event period _(continued)_

Event day	CAR (Size < Mean)	CAR (Size > Mean)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
16	-0.0013	-0.1264	0.1251	3.1297***	2.9174***
17	-0.0026	-0.1308	0.1282	3.1198***	2.9740***
18	-0.0040	-0.1340	0.1301	3.2725***	2.9316***
19	-0.0018	-0.1319	0.1300	3.1801***	2.6625***
20	0.0020	-0.1443	0.1464	3.3450***	2.8607***
1 year	-0.0964	-0.4465	0.3501	1.8792*	1.5012

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
Day 0 represents an event day (announcement day).

Table 6A: Average and cumulative abnormal returns by discount of ESOP

This table reports event study results on average abnormal returns (AAR) and cumulative abnormal returns (CAR) by discount of ESOP issued during the event period. As noted earlier, "Discount of ESOP" in this study is classified into two groups; K < S and K > S, while K and S denote, respectively, the strike price of ESOP warrant and the closing price of the underlying stock on day t-1. Also, the differences of AAR and CAR between two groups are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test as noted earlier. Panel A and B report AAR and CAR, respectively.

Panel A : Average abnormal returns separated by discount during the event period

Event day	AAR (K < S)	AAR (K > S)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	-0.0001	0.0075	-0.0076	0.9169	0.0527
-19	-0.0001	0.0030	-0.0031	0.4329	0.6550
-18	-0.0004	0.0136	-0.0140	2.5444**	2.2061**
-17	-0.0010	0.0176	-0.0186	2.6485**	1.8447*
-16	-0.0023	-0.0100	0.0077	1.1865	1.3779
-15	-0.0011	0.0028	-0.0039	0.7233	0.1581
-14	0.0016	-0.0001	0.0017	0.2587	0.6852
-13	0.0026	-0.0098	0.0123	1.8292*	1.0466
-12	0.0017	-0.0048	0.0065	1.2054	1.3779
-11	0.0003	-0.0037	0.0040	0.8468	0.7454
-10	0.0026	-0.0021	0.0047	0.7284	0.0226
-9	0.0012	-0.0037	0.0049	1.0561	1.0767
-8	-0.0031	0.0039	-0.0070	1.5746	0.9863
-7	0.0003	0.0017	-0.0014	0.2616	0.1280
-6	-0.0030	0.0004	-0.0034	0.7580	0.8659
-5	0.0045	-0.0011	0.0057	0.5303	0.2183
-4	-0.0027	0.0011	-0.0038	0.6606	0.9562
-3	-0.0004	-0.0014	0.0010	0.1929	0.0376
-2	0.0006	-0.0004	0.0011	0.1790	0.4593
-1	-0.0010	0.0073	-0.0083	1.3048	1.0767
0	-0.0109	-0.0045	-0.0064	1.0904	1.6640*
1	-0.0011	-0.0048	0.0037	0.5831	0.7002
2	0.0033	-0.0020	0.0053	0.7537	0.2183
3	-0.0005	-0.0069	0.0064	1.4946	0.9110
4	0.0015	-0.0006	0.0021	0.4287	0.5948
5	-0.0023	0.0021	-0.0044	0.7007	1.2273
6	-0.0054	0.0083	-0.0136	1.3870	1.8447*
7	-0.0087	0.0021	-0.0108	2.1669**	1.9802**
8	-0.0013	0.0079	-0.0091	1.4812	1.5887
9	0.0023	-0.0034	0.0058	1.5787	1.3929
10	-0.0045	0.0012	-0.0058	1.2663	1.2875
11	-0.0117	-0.0004	-0.0113	1.5625	1.7844*
12	-0.0023	0.0006	-0.0029	0.6288	0.4292
13	-0.0048	0.0003	-0.0051	0.7894	1.0315
14	0.0029	-0.0031	0.0060	0.8936	0.1280
15	-0.0060	0.0043	-0.0103	1.8898*	2.4771**
16	-0.0025	-0.0007	-0.0019	0.4135	0.7755
17	-0.0035	0.0014	-0.0050	1.0047	0.3238
18	-0.0005	-0.0045	0.0040	0.8575	0.8357
19	0.0022	-0.0033	0.0054	0.9070	0.3539
20	-0.0008	0.0026	-0.0035	0.5086	0.5948
1 year	0.0058	-0.0134	0.0192	3.1533***	2.6578***

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.

Day 0 represents an event day (announcement day).

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Panel B : Cumulative abnormal returns separated by discount during the event period

Event day	CAR (K < S)	CAR (K > S)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	-0.0001	0.0075	-0.0076	0.9169	0.0527
-19	-0.0002	0.0104	-0.0107	1.0194	0.5496
-18	-0.0006	0.0241	-0.0247	2.1553**	2.2362**
-17	-0.0016	0.0417	-0.0432	3.4361***	2.8536***
-16	-0.0038	0.0317	-0.0356	2.5320**	2.4319**
-15	-0.0049	0.0346	-0.0395	2.4944**	2.2814**
-14	-0.0033	0.0345	-0.0378	2.0910**	1.7393*
-13	-0.0008	0.0247	-0.0255	1.3367	1.0466
-12	0.0009	0.0199	-0.0190	1.0029	0.6099
-11	0.0012	0.0162	-0.0149	0.7737	0.4141
-10	0.0038	0.0140	-0.0102	0.5261	0.1732
-9	0.0050	0.0104	-0.0054	0.2623	0.0075
-8	0.0019	0.0142	-0.0124	0.5700	0.2485
-7	0.0022	0.0160	-0.0138	0.6378	0.2936
-6	-0.0008	0.0164	-0.0172	0.7833	0.4292
-5	0.0037	0.0152	-0.0116	0.4895	0.1280
-4	0.0010	0.0163	-0.0154	0.6448	0.0678
-3	0.0005	0.0149	-0.0144	0.6120	0.0075
-2	0.0011	0.0144	-0.0133	0.5493	0.0678
-1	0.0001	0.0217	-0.0216	0.8677	0.2485
0	-0.0108	0.0172	-0.0280	1.1384	0.5496
1	-0.0119	0.0124	-0.0243	0.9394	0.3689
2	-0.0085	0.0105	-0.0190	0.6696	0.0226
3	-0.0090	0.0036	-0.0125	0.4449	0.3539
4	-0.0075	0.0029	-0.0104	0.3566	0.5045
5	-0.0098	0.0050	-0.0148	0.4854	0.2485
6	-0.0152	0.0133	-0.0285	0.8576	0.1882
7	-0.0240	0.0154	-0.0393	1.1827	0.7002
8	-0.0252	0.0232	-0.0484	1.4263	1.0014
9	-0.0229	0.0198	-0.0427	1.2386	0.8056
10	-0.0274	0.0210	-0.0484	1.3463	1.1068
11	-0.0391	0.0206	-0.0597	1.6207	1.3327
12	-0.0414	0.0212	-0.0626	1.7226*	1.4531
13	-0.0462	0.0215	-0.0677	1.8072*	1.8296*
14	-0.0434	0.0184	-0.0617	1.5774	1.5736
15	-0.0493	0.0227	-0.0720	1.7477*	1.8145*
16	-0.0519	0.0220	-0.0739	1.8248*	2.0404**
17	-0.0554	0.0235	-0.0789	1.8893*	1.9501*
18	-0.0559	0.0190	-0.0749	1.8475*	1.8898*
19	-0.0537	0.0157	-0.0694	1.6971*	1.7844*
20	-0.0546	0.0183	-0.0729	1.6479	1.5134
1 year	-0.3390	0.0848	-0.4238	2.2642**	1.9651**

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
Day 0 represents an event day (announcement day).

Table 7A: Cumulative abnormal returns for ESOP with K > S

This table reports event study results on cumulative abnormal returns (CAR) for ESOP with K > S. The behavior of the cumulative average residuals reveals the shareholders' perception of ESOP implementation as reflected by stock prices. To test the cumulative abnormal return whether it is statistically significant or not, I apply both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test. By using Wilcoxon Sign Rank Test, the restriction on distribution assumption can be ignored, while t-test assumes the sample follows normal distribution.

Event day	CAR (K > S)	t-statistics	Wilcoxon Sign Rank Test (Z)	Event day	CAR (K > S)	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	0.0075	0.7624	0.1680	1	0.0124	0.5302	0.3920
-19	0.0104	0.9767	0.1307	2	0.0105	0.4299	0.4667
-18	0.0241	2.4809**	2.4826**	3	0.0036	0.1454	0.8400
-17	0.0417	3.3285***	2.8933***	4	0.0029	0.1212	0.8027
-16	0.0317	2.1757**	2.1840**	5	0.0050	0.2053	0.9147
-15	0.0346	2.1190**	1.9973**	6	0.0133	0.5195	0.7653
-14	0.0345	1.7551*	1.7733*	7	0.0154	0.5931	0.7653
-13	0.0247	1.3405	0.7653	8	0.0232	0.8896	0.0560
-12	0.0199	1.0908	0.3547	9	0.0198	0.7666	0.1307
-11	0.0162	0.8659	0.2053	10	0.0210	0.8228	0.2427
-10	0.0140	0.7940	0.1307	11	0.0206	0.8010	0.0560
-9	0.0104	0.5943	0.3173	12	0.0212	0.8516	0.1680
-8	0.0142	0.7394	0.1307	13	0.0215	0.8392	0.3920
-7	0.0160	0.8105	0.1680	14	0.0184	0.7143	0.3547
-6	0.0164	0.8351	0.1307	15	0.0227	0.8788	0.4293
-5	0.0152	0.7343	0.0187	16	0.0220	0.8598	0.5787
-4	0.0163	0.7338	0.0187	17	0.0235	0.8603	0.2800
-3	0.0149	0.6719	0.0187	18	0.0190	0.7395	0.3547
-2	0.0144	0.6357	-0.0187	19	0.0157	0.6434	0.4293
-1	0.0217	0.8774	0.0933	20	0.0183	0.6986	0.2800
0	0.0172	0.7659	0.0933	1 year	0.0848	0.6850	0.3547

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
Day 0 represents an event day (announcement day).

Table 8A: Average and cumulative abnormal returns by type of business

This table reports event study results on average abnormal returns (AAR) and cumulative abnormal returns (CAR) during the event period separated by type of business that the sponsoring companies are in. However, as, by the definition of the SET, the ESOP sponsoring companies are in varied industries, therefore; investigating the consequences separately by each industry may lead to unclear results due to the limitation of sample size. Thus, to avoid such a problem, I classify the ESOP sponsoring companies into only two sectors, services sector and real sector. The grouping for each sector is shown in Appendix D. Also, the differences of AAR and CAR between two groups are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test as noted before. Panel A and B report AAR and CAR, respectively.

Panel A : Average abnormal returns during the event period separated by type of business

Event day	AAR (Services Sector)	AAR (Real Sector)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	0.0026	0.0034	-0.0007	0.0926	0.6496
-19	0.0003	0.0034	-0.0031	0.4707	0.0591
-18	0.0067	-0.0042	0.0109	2.0259**	2.1850**
-17	0.0035	0.0053	-0.0017	0.2506	1.1351
-16	-0.0037	-0.0050	0.0013	0.2185	0.0722
-15	0.0038	-0.0059	0.0097	2.0344**	2.2637**
-14	0.0028	-0.0038	0.0067	1.1340	0.7939
-13	0.0039	-0.0121	0.0160	2.5939**	2.3687**
-12	-0.0032	0.0020	-0.0051	1.0045	0.8333
-11	-0.0030	0.0018	-0.0048	1.1185	0.4527
-10	-0.0013	0.0098	-0.0112	1.7987*	0.6890
-9	-0.0042	0.0063	-0.0106	2.5969**	2.6181***
-8	0.0012	-0.0036	0.0049	1.1542	1.5288
-7	-0.0007	0.0062	-0.0068	1.3001	1.3057
-6	-0.0022	0.0024	-0.0046	0.9140	0.0984
-5	0.0006	0.0022	-0.0016	0.1599	0.8858
-4	0.0025	-0.0086	0.0110	2.2097**	1.4895
-3	-0.0013	0.0002	-0.0015	0.3246	0.3084
-2	0.0001	-0.0003	0.0004	0.0729	0.2428
-1	0.0072	-0.0077	0.0148	2.6999***	2.2506**
0	-0.0098	-0.0086	-0.0011	0.2147	0.2165
1	-0.0039	-0.0013	-0.0026	0.4556	0.1509
2	0.0046	-0.0020	0.0066	1.0086	0.3609
3	-0.0046	-0.0002	-0.0044	1.1084	0.8858
4	0.0021	-0.0015	0.0036	0.7181	0.0591
5	-0.0010	-0.0074	0.0064	0.9152	1.0695
6	-0.0012	-0.0079	0.0067	0.6974	2.3162**
7	-0.0060	-0.0015	-0.0045	0.8963	1.2270
8	0.0045	-0.0017	0.0063	1.1101	0.1247
9	-0.0025	0.0021	-0.0045	1.2369	2.1588**
10	-0.0020	-0.0030	0.0010	0.2296	0.5446
11	-0.0065	-0.0113	0.0048	0.7115	1.1483
12	-0.0024	0.0026	-0.0050	1.1288	0.6758

Event day	AAR (Services Sector)	AAR (Real Sector)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
13	-0.0008	-0.0062	0.0053	0.8837	0.7808
14	0.0007	-0.0014	0.0021	0.3266	0.6233
15	-0.0027	-0.0024	-0.0002	0.0426	1.3057
16	-0.0052	-0.0024	-0.0028	0.5673	0.6496
17	-0.0040	0.0005	-0.0045	0.9596	1.4370
18	-0.0020	-0.0016	-0.0004	0.0945	0.1378
19	-0.0020	0.0085	-0.0105	1.4471	1.0564
20	0.0011	-0.0037	0.0048	0.7203	1.2008
1 year	-0.0008	0.0005	-0.0013	0.2268	0.4265

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
Day 0 represents an event day (announcement day).

Panel B : Cumulative abnormal returns during the event period separated by type of business

Event day	CAR (Services Sector)	CAR (Real Sector)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
-20	0.0026	0.0034	-0.0007	0.0926	0.6496
-19	0.0029	0.0067	-0.0039	0.3759	0.6627
-18	0.0096	0.0025	0.0071	0.6096	0.7546
-17	0.0131	0.0078	0.0053	0.4137	0.3084
-16	0.0094	0.0028	0.0067	0.4894	0.1772
-15	0.0133	-0.0031	0.0164	1.0771	0.5971
-14	0.0161	-0.0070	0.0230	1.3502	0.9645
-13	0.0200	-0.0190	0.0390	2.2275**	1.8307*
-12	0.0168	-0.0170	0.0339	1.8992*	1.4501
-11	0.0138	-0.0153	0.0290	1.5868	1.2926
-10	0.0124	-0.0055	0.0179	0.9938	1.0039
-9	0.0082	0.0009	0.0073	0.3893	0.4003
-8	0.0094	-0.0027	0.0122	0.6124	0.6627
-7	0.0088	0.0034	0.0054	0.2685	0.2297
-6	0.0066	0.0059	0.0007	0.0361	0.0984
-5	0.0072	0.0081	-0.0008	0.0386	0.6553
-4	0.0097	-0.0005	0.0102	0.4701	0.4265
-3	0.0084	-0.0003	0.0087	0.4070	0.3346
-2	0.0085	-0.0006	0.0091	0.4127	0.3871
-1	0.0156	-0.0083	0.0239	1.0622	1.0827
0	0.0058	-0.0169	0.0228	1.0168	1.3582
1	0.0019	-0.0182	0.0202	0.8570	1.0039
2	0.0065	-0.0202	0.0267	1.0501	1.1089
3	0.0019	-0.0204	0.0223	0.8795	0.7939
4	0.0040	-0.0219	0.0259	0.9793	0.8202
5	0.0030	-0.0293	0.0322	1.1301	0.8464
6	0.0017	-0.0372	0.0390	1.2191	0.7152
7	-0.0042	-0.0387	0.0345	1.0916	0.6365
8	0.0003	-0.0404	0.0407	1.2658	0.7677
9	-0.0021	-0.0383	0.0362	1.1103	0.6365
10	-0.0041	-0.0413	0.0372	1.0992	1.0302
11	-0.0106	-0.0526	0.0420	1.2078	1.2926
12	-0.0130	-0.0500	0.0370	1.0755	1.1614
13	-0.0138	-0.0562	0.0423	1.1925	1.2008
14	-0.0131	-0.0575	0.0444	1.1951	0.9777
15	-0.0158	-0.0600	0.0442	1.1282	1.1220
16	-0.0210	-0.0624	0.0414	1.0498	1.1220

Panel B : Cumulative abnormal returns during the event period separated by type of business (continued)

Event day	CAR (Services Sector)	CAR (Real Sector)	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
17	-0.0250	-0.0619	0.0368	0.9074	0.8333
18	-0.0270	-0.0635	0.0365	0.9222	0.8989
19	-0.0290	-0.0550	0.0259	0.6380	0.5840
20	-0.0280	-0.0587	0.0307	0.7022	0.6627
1 year	-0.1340	-0.2943	0.1602	0.9095	0.0197

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.
Day 0 represents an event day (announcement day).

Table 9A: Summary statistics of performance of ESOP firms

This table reports summary statistics for performance measures (after adjustment for sector effect) of ESOP adopting firms included in this study from quarter t-1 to quarter t+6. The sample consists of 66 ESOP issuances by 43 sponsoring companies. The tables report mean, median, minimum, maximum, standard deviation and skewness of key financial ratios used for measuring the firms' performance in this study. Firm's performance is defined by Profitability, Productivity, and overall performance indicator. Profitability is measured using 'Net Profit Margin (NPM)', 'Return on Asset (ROA)' and 'Return on Equity (ROE)'. Productivity is represented by 'Total Asset Turnover (TATO)', whilst 'Tobin's Q' is an indicator of overall performance. Each Panel represents summary statistics of each key financial ratio and quarter t denotes the quarter that ESOP is announced.

Panel A : Net Profit Margin (NPM)

Quarter	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	No.of Observations
t-1	1.35%	0.13%	35.55%	-1.47%	6.0108	5.2913	66
t	0.96%	0.10%	30.77%	-10.30%	4.9784	4.2786	66
t+1	-0.53%	0.10%	25.95%	-78.36%	10.3178	-6.3722	66
t+2	0.02%	0.16%	29.79%	-48.14%	7.3673	-3.1731	66
t+3	0.64%	0.12%	31.34%	-16.79%	4.8293	3.7021	66
t+4	1.26%	0.16%	24.81%	-2.13%	4.6265	4.2451	66
t+5	0.77%	0.14%	47.86%	-10.30%	6.0607	7.1775	66
t+6	1.11%	0.12%	27.96%	-8.55%	5.1492	4.0464	66

Panel B : Return on Asset (ROA)

Quarter	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	No.of Observations
t-1	-0.04%	-0.04%	0.17%	-0.22%	0.0673	0.2039	66
t	-0.05%	-0.06%	0.20%	-0.21%	0.0718	0.7690	66
t+1	-0.04%	-0.04%	0.17%	-0.20%	0.0670	0.3513	66
t+2	-0.05%	-0.04%	0.12%	-0.30%	0.0887	-0.6099	66
t+3	-0.05%	-0.06%	0.17%	-0.23%	0.0777	0.4750	66
t+4	-0.05%	-0.06%	0.14%	-0.24%	0.0658	0.3517	66
t+5	-0.05%	-0.05%	0.13%	-0.19%	0.0658	0.3267	66
t+6	-0.06%	-0.05%	0.16%	-0.58%	0.0971	-2.1255	66

Panel C : Return on Equity (ROE)

Quarter	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	No.of Observations
t-1	-0.02%	-0.05%	1.77%	-0.93%	0.3225	2.8914	66
t	-0.09%	-0.08%	0.72%	-1.06%	0.2220	-0.6270	66
t+1	-0.08%	-0.07%	1.18%	-2.28%	0.3483	-3.1977	66
t+2	-0.03%	-0.06%	1.47%	-0.90%	0.3193	2.5668	66
t+3	-0.28%	-0.09%	0.49%	-10.00%	1.2874	-6.8860	66
t+4	-0.10%	-0.10%	0.26%	-0.72%	0.1495	-1.0140	66
t+5	-0.12%	-0.08%	0.22%	-2.77%	0.3704	-5.8423	66
t+6	-0.09%	-0.07%	0.33%	-1.31%	0.2037	-3.1842	66

Panel D : Total Asset Turnover (TATO)

Quarter	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	No.of Observations
t-1	-0.41%	-0.34%	0.46%	-1.89%	0.4879	-0.9769	66
t	-0.45%	-0.36%	1.44%	-1.96%	0.5287	-0.1650	66
t+1	-0.43%	-0.39%	1.22%	-1.95%	0.5362	-0.2435	66
t+2	-0.43%	-0.36%	0.63%	-1.89%	0.5270	-0.8448	66
t+3	-0.47%	-0.37%	0.40%	-1.96%	0.5190	-1.0163	66
t+4	-0.50%	-0.43%	1.41%	-2.04%	0.5526	-0.1881	66
t+5	-0.47%	-0.40%	1.12%	-1.90%	0.5225	-0.1615	66
t+6	-0.46%	-0.35%	0.73%	-1.93%	0.5484	-0.8094	66

Panel E : Tobin's Q (Q)

Quarter	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	No.of Observations
t-1	0.33	0.11	3.30	-2.20	0.8799	0.4107	66
t	0.30	0.12	2.42	-1.96	0.7819	0.2658	66
t+1	0.30	0.16	2.62	-1.90	0.7850	0.3442	66
t+2	0.24	0.08	2.05	-1.89	0.7778	0.2604	66
t+3	0.23	0.04	2.54	-2.27	0.7969	0.2322	66
t+4	0.20	0.07	2.03	-1.82	0.7362	0.2024	66
t+5	0.23	0.12	2.20	-2.32	0.7756	-0.0501	66
t+6	0.20	0.06	1.90	-1.61	0.7825	0.1816	66

Notes: Quarter t denotes the quarter that ESOP is announced.

Table 10A: Performance of ESOP firms separated by size of ESOP

This table reports the effect of ESOP on the firm's performance, measured by key financial ratios, separated by size of ESOP. In this paper, the size of ESOP is defined as follow:

Size of ESOP = No. of stocks appropriated for ESOP / Total no. of outstanding stocks

To investigate whether the different sizes of ESOP affects in different ways to the consequences of the adoptions, I categorize the size of ESOP issued into two groups, ESOP with size less than mean (Size < Mean) and ESOP with size greater than mean (Size > Mean). Then, the consequences are tested separately by different categories using those methodologies described earlier. Also, the differences of operating performance between pre- and post- ESOP adoptions are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test as noted before.

Ratios	*No. of Samples*	*Before ESOP Adoption*	*After ESOP Adoption*	*Difference*	*t-statistics*	*Wilcoxon Sign Rank Test (Z)*
NPM						
Size < mean	47	1.13%	1.27%	0.14%	0.2810	0.5556
Size > mean	19	1.89%	-1.25%	-3.13%	-1.0385	1.0664
Difference		-0.76%	2.51%	3.27%	1.5956	0.6798
ROA						
Size < mean	47	-0.03%	-0.04%	-0.01%	-0.7866	0.0265
Size > mean	19	-0.05%	-0.08%	-0.03%	-1.9406*	2.0322**
Difference		0.02%	0.04%	0.02%	1.5826	1.8269*
ROE						
Size < mean	47	-0.08%	-0.06%	0.02%	0.6053	0.5344
Size > mean	19	0.13%	-0.26%	-0.39%	-1.7993*	2.2737**
Difference		-0.21%	0.20%	0.41%	2.8224***	2.2943**
TATO						
Size < mean	47	-0.40%	-0.44%	-0.04%	-1.2616	0.7037
Size > mean	19	-0.44%	-0.51%	-0.07%	-0.9321	0.6238
Difference		0.04%	0.07%	0.03%	0.4445	0.3399
Q						
Size < mean	47	0.50	0.43	-0.07	-0.7984	0.0688
Size > mean	19	-0.09	-0.26	-0.17	-1.3674	0.8652
Difference		0.58	0.69	0.11	0.6987	0.7081

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.

Table 11A: Performance of ESOP firms separated by discount of ESOP

This table reports the effect of ESOP on the firm's performance, measured by key financial ratios, separated by discount of ESOP. As noted earlier, "Discount of ESOP" in this study is classified into two groups; K < S and K > S, while K and S denote, respectively, the strike price of ESOP warrant and the closing price of the underlying stock on day t-1. Also, the differences of operating performance between pre- and post- ESOP adoptions are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test as noted before.

Ratios	No. of Samples	Before ESOP Adoption	After ESOP Adoption	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
NPM						
K < S	42	0.35%	0.27%	-0.07%	-0.5206	1.4129
K > S	20	3.84%	1.34%	-2.50%	-0.8041	0.0187
Difference		-3.49%	-1.07%	2.43%	1.1367	0.6249
ROA						
K < S	42	-0.03%	-0.04%	-0.01%	-1.5272	0.4876
K > S	20	-0.04%	-0.06%	-0.02%	-1.3262	1.1760
Difference		0.01%	0.02%	0.00%	0.2646	0.2936
ROE						
K < S	42	-0.04%	-0.07%	-0.04%	-1.3097	0.4251
K > S	20	-0.06%	-0.18%	-0.12%	-0.6352	0.0560
Difference		0.02%	0.11%	0.08%	0.6289	0.4743
TATO						
K < S	42	-0.38%	-0.43%	-0.05%	-1.2500	0.4001
K > S	20	-0.44%	-0.47%	-0.03%	-0.8540	0.0187
Difference		0.05%	0.04%	-0.02%	0.2613	0.1280
Q						
K < S	42	0.26	0.23	-0.03	-0.4757	0.3751
K > S	20	0.54	0.30	-0.25	-1.3117	0.4293
Difference		-0.28	-0.07	0.22	1.3831	0.2183

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.

Table 12A: Performance of ESOP firms separated by type of business

This table reports the effect of ESOP on the firm's performance, measured by key financial ratios, separated by type of business that the sponsoring companies are in. As noted earlier, in this study, I classify the ESOP sponsoring companies into main two sectors, real sector and services sector. Also, the differences of operating performance between pre- and post- ESOP adoptions are tested for the statistical significance using both a two sample t-statistic and the nonparametric Wilcoxon Sign Rank Test as noted before.

Ratios	No. of Samples	Before ESOP Adoption	After ESOP Adoption	Difference	t-statistics	Wilcoxon Sign Rank Test (Z)
NPM						
Service	40	2.20%	0.89%	-1.31%	-0.8441	0.9207
Real	26	0.03%	0.01%	-0.02%	-0.3518	0.3810
Difference		2.17%	0.89%	-1.29%	0.6665	0.4396
ROA						
Service	40	-0.03%	-0.03%	-0.01%	-0.8723	0.4100
Real	26	-0.05%	-0.07%	-0.02%	-1.8867*	1.3969
Difference		0.02%	0.03%	0.01%	0.8396	0.8596
ROE						
Service	40	0.01%	-0.12%	-0.13%	-1.1542	0.1143
Real	26	-0.07%	-0.12%	-0.05%	-1.8790*	1.6255
Difference		0.08%	0.00%	-0.08%	0.5622	0.9777
TATO						
Service	40	-0.33%	-0.34%	-0.01%	-0.4319	1.0820
Real	26	-0.55%	-0.64%	-0.09%	-1.7548*	1.1937
Difference		0.22%	0.30%	0.08%	1.3558	1.1745
Q						
Service	40	0.34	0.19	-0.15	-1.4150	0.5713
Real	26	0.32	0.30	-0.02	-0.2642	0.0000
Difference		0.01	-0.12	-0.13	0.9161	0.4659

Notes: *, **, ***denotes statistical significance at the 10%, 5% and 1% levels respectively.

APPENDIX B : DATA

Table 1B: A listing of all ESOP issuances used in this study

This table presents a listing of all 66 ESOP issuances by 43 sponsoring firms used in this study, sorted by symbols. The symbols of the sponsoring firms, together with the industries and sectors that those firms are in and the approval date of each issue are also provided. Note that the symbols and industries/sectors shown in this table are those identified by the SET. The approval date is the announcement day (t = 0), on which ESOP was approved and disclosed by the SEC. The samples cover the ESOP adoptions of listed companies in the Stock Exchange of Thailand (SET) announced during the first trading date of the year 2001 to the last trading date of June 2005 in order to make the post-adoption performance available for testing. Moreover, the ESOP issued at the same time or immediately after IPO is eliminated due to the unavailability of historical data as the estimate window starts on day t -200 and ends with day t -21.

No.	Name	Symbol	Industry/Sector	Approval Date
	Warrant ESOP			
1	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	ADVANC	Technology / ICT*	27-Mar-02
				27-May-03
				31-May-04
				31-May-05
2	ASIA PLUS SECURITIES PUBLIC COMPANY LIMITED	ASP	Financials / Finance and Securities	24-Jul-03
				18-Dec-04
3	THE AROMATICS (THAILAND) PUBLIC COMPANY LIMITED	ATC	Industrials / Petrochemicals & Chemicals	2-Feb-04
4	BANPU PUBLIC COMPANY LIMITED	BANPU	Resources / Energy & Utilities	22-Nov-01
5	THE BANGCHAK PETROLEUM PUBLIC COMPANY LIMITED	BCP	Resources / Energy & Utilities	6-Aug-04
6	CH. KARNCHANG PUBLIC COMPANY LIMITED	CK	Property & Construction / Property Development	29-Mar-04
7	CS LOXINFO PUBLIC COMPANY LIMITED	CSL	Technology / ICT*	27-May-05
8	CHAI WATANA TANNERY GROUP PUBLIC COMPANY LIMITED	CWT	Industrials / Automotive	28-Jan-05
9	EASTERN WATER RESOURCES DEVELOPMENT AND MANAGEMENT PLC.	EASTW	Resources / Energy & Utilities	10-Aug-04
10	HANA MICROELECTRONICS PUBLIC COMPANY LIMITED	HANA	Technology / Electronic Components	8-Oct-02
				27-Oct-04
11	HOME PRODUCT CENTER PUBLIC COMPANY LIMITED	HMPRO	Services / Commerce	31-Aug-04
12	INTERNET THAILAND PUBLIC COMPANY LIMITED	INET	Technology / ICT*	1-Apr-04
13	ITV PUBLIC COMPANY LIMITED	ITV	Services / Media & Publishing	31-May-05
14	JASMINE INTERNATIONAL PUBLIC COMPANY LIMITED	JAS	Technology / ICT*	26-Mar-02

Table 1B: A listing of all ESOP issuances used in this study *(continued)*

No.	Name	Symbol	Industry/Sector	Approval Date
	Warrant ESOP *(continued)*			
15	KASIKORNBANK PUBLIC COMPANY LIMITED	KBANK	Financials / Banking	29-Nov-01
				2-Dec-02
16	KIATNAKIN BANK PUBLIC COMPANY LIMITED	KK	Financials / Banking	13-Mar-01
17	KRISDAMAHANAKORN PUBLIC COMPANY LIMITED	KMC	Property & Construction / Property Development	13-May-05
18	LAND AND HOUSES PUBLIC COMPANY LIMITED	LH	Property & Construction / Property Development	7-Feb-02
				7-Mar-03
				3-Mar-04
				7-Apr-05
19	MAJOR CINEPLEX GROUP PUBLIC COMPANY LIMITED	MAJOR	Services / Media & Publishing	27-May-03
20	MATCHING STUDIO PUBLIC COMPANY LIMITED	MATCH	Services / Media & Publishing	3-Feb-04
21	MINOR CORPORATION PUBLIC COMPANY LIMITED	MINOR	Services / Commerce	27-Jul-04
				29-Jun-05
22	MODERNFORM GROUP PUBLIC COMPANY LIMITED	MODERN	Consumer Products / Home & Office Products	30-Nov-04
23	MAGNECOMP PRECISION TECHNOLOGY PUBLIC COMPANY LIMITED	MPT	Technology / Electronic Components	24-May-02
24	NEP REALTY AND INDUSTRY PUBLIC COMPANY LIMITED	NEP	Industrials / Packaging	20-Apr-04
25	PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY	PTTEP	Resources / Energy & Utilities	30-Jul-02
				2-Jul-03
				2-Jul-04
26	QUALITY HOUSES PUBLIC COMPANY LIMITED	QH	Property & Construction / Property Development	18-Jun-02
				11-Sep-03
				10-Sep-04
27	SAMART CORPORATION PUBLIC COMPANY LIMITED	SAMART	Technology / ICT*	28-Jun-02
				18-Jul-03
				9-Sep-04
28	SHIN SATELLITE PUBLIC COMPANY LIMITED	SATTEL	Technology / ICT*	27-Mar-02
				31-May-05
29	SE-EDUCATION PUBLIC COMPANY LIMITED	SE-ED	Services / Media & Publishing	3-Dec-01

Table 1B: A listing of all ESOP issuances used in this study *(continued)*

No.	Name	Symbol	Industry/Sector	Approval Date
	Warrant ESOP *(continued)*			
30	SHIN CORPORATION PUBLIC COMPANY LIMITED	SHIN	Technology / ICT*	27-Mar-02
				31-May-05
31	THE SIAM INDUSTRIAL CREDIT PUBLIC COMPANY LIMITED	SICCO	Financials / Finance and Securities	9-Oct-01
				23-May-02
				8-May-03
32	SIAM SPORT SYNDICATE PUBLIC COMPANY LIMITED	SPORT	Services / Media & Publishing	19-Aug-02
33	SICCO SECURITIES PUBLIC COMPANY LIMITED	SSEC	Financials / Finance and Securities	27-Nov-03
34	TISCO BANK PUBLIC COMPANY LIMITED	TISCO-P	Financials / Banking	29-May-01
				16-Aug-02
				5-Jun-03
				19-Aug-04
35	THAI UNION FROZEN PRODUCTS PUBLIC COMPANY LIMITED	TUF	Agro & Food Industry / Food and Beverage	8-Jan-04
36	UNITED BROADCASTING CORPORATION PUBLIC CO., LTD.	UBC	Services / Media & Publishing	16-Nov-01
37	UNITED SECURITIES PUBLIC COMPANY LIMITED	US	Financials / Finance and Securities	4-Oct-02
38	SEAMICO SECURITIES PUBLIC COMPANY LIMITED	ZMICO	Financials / Finance and Securities	6-Aug-04
	Stock ESOP			
39	LOXLEY PUBLIC COMPANY LIMITED	LOXLEY	Services / Commerce	23-Feb-01
40	NAVANAKORN PUBLIC COMPANY LIMITED	NNCL	Property & Construction / Property Development	24-Feb-05
41	NAWARAT PATANAKARN PUBLIC COMPANY LIMITED	NWR	Property & Construction / Property Development	4-Jun-03
42	TONGKAH HARBOUR PUBLIC COMPANY LIMITED	THL	Resources / Mining	16-Apr-04
	Warrant ESOP and Stock ESOP			
43	THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED	THAI	Services / Transportation & Logistics	18-Feb-04

* ICT denotes Information & Communication Technology.

Table 2B: A listing of ESOP issuances separated by size of ESOP

This table presents a listing of ESOP issuances separated by size of ESOP. In this paper, the size of ESOP is defined as follow:

Size of ESOP = No. of stocks appropriated for ESOP / Total no. of outstanding stocks

To investigate whether the different sizes of ESOP affects in different ways to the consequences of the adoptions, I categorize the size of ESOP issued into two groups, ESOP with size less than mean (Size < Mean) and ESOP with size greater than mean (Size > Mean).

No.	Symbol	Industry/Sector	Type of ESOP	Approval Date
		Size < Mean		
1	ADVANC	Technology / ICT*	Warrant	27-Mar-02
2	ADVANC	Technology / ICT*	Warrant	27-May-03
3	ADVANC	Technology / ICT*	Warrant	31-May-04
4	ADVANC	Technology / ICT*	Warrant	31-May-05
5	ASP	Financials / Finance and Securities	Warrant	24-Jul-03
6	ASP	Financials / Finance and Securities	Warrant	18-Dec-04
7	ATC	Industrials / Petrochemicals & Chemicals	Warrant	2-Feb-04
8	BANPU	Resources / Energy & Utilities	Warrant	22-Nov-01
9	CSL	Technology / ICT*	Warrant	27-May-05
10	HANA	Technology / Electronic Components	Warrant	8-Oct-02
11	HMPRO	Services / Commerce	Warrant	31-Aug-04
12	ITV	Services / Media & Publishing	Warrant	31-May-05
13	KBANK	Financials / Banking	Warrant	29-Nov-01
14	KBANK	Financials / Banking	Warrant	2-Dec-02
15	KMC	Property & Construction / Property Development	Warrant	13-May-05
16	LH	Property & Construction / Property Development	Warrant	7-Feb-02
17	LH	Property & Construction / Property Development	Warrant	7-Mar-03
18	LH	Property & Construction / Property Development	Warrant	3-Mar-04
19	LH	Property & Construction / Property Development	Warrant	7-Apr-05
20	MAJOR	Services / Media & Publishing	Warrant	27-May-03
21	MINOR	Services / Commerce	Warrant	27-Jul-04
22	MINOR	Services / Commerce	Warrant	29-Jun-05
23	MODERN	Consumer Products / Home & Office Products	Warrant	30-Nov-04
24	NWR	Property & Construction / Property Development	Stock	4-Jun-03
25	PTTEP	Resources / Energy & Utilities	Warrant	30-Jul-02
26	PTTEP	Resources / Energy & Utilities	Warrant	2-Jul-03
27	PTTEP	Resources / Energy & Utilities	Warrant	2-Jul-04
28	QH	Property & Construction / Property Development	Warrant	18-Jun-02
29	QH	Property & Construction / Property Development	Warrant	11-Sep-03
30	QH	Property & Construction / Property Development	Warrant	10-Sep-04
31	SAMART	Technology / ICT*	Warrant	28-Jun-02
32	SAMART	Technology / ICT*	Warrant	18-Jul-03
33	SAMART	Technology / ICT*	Warrant	9-Sep-04
34	SATTEL	Technology / ICT*	Warrant	27-Mar-02
35	SATTEL	Technology / ICT*	Warrant	31-May-05
36	SHIN	Technology / ICT*	Warrant	27-Mar-02
37	SHIN	Technology / ICT*	Warrant	31-May-05
38	SICCO	Financials / Finance and Securities	Warrant	9-Oct-01
39	SICCO	Financials / Finance and Securities	Warrant	23-May-02
40	SICCO	Financials / Finance and Securities	Warrant	8-May-03
41	THAI	Services / Transportation & Logistics	Both	18-Feb-04
42	TISCO-P	Financials / Banking	Warrant	29-May-01

Table 2B: A listing of ESOP issuances separated by size of ESOP *(continued)*

No.	Symbol	Industry/Sector	Type of ESOP	Approval Date
		Size < Mean *(continued)*		
43	TISCO-P	Financials / Banking	Warrant	16-Aug-02
44	TISCO-P	Financials / Banking	Warrant	5-Jun-03
45	TISCO-P	Financials / Banking	Warrant	19-Aug-04
46	TUF	Agro & Food Industry / Food and Beverage	Warrant	8-Jan-04
47	ZMICO	Financials / Finance and Securities	Warrant	6-Aug-04
		Size > Mean		
1	BCP	Resources / Energy & Utilities	Warrant	6-Aug-04
2	CK	Property & Construction / Property Development	Warrant	29-Mar-04
3	CWT	Industrials / Automotive	Warrant	28-Jan-05
4	EASTW	Resources / Energy & Utilities	Warrant	10-Aug-04
5	HANA	Technology / Electronic Components	Warrant	27-Oct-04
6	INET	Technology / ICT*	Warrant	1-Apr-04
7	JAS	Technology / ICT*	Warrant	26-Mar-02
8	KK	Financials / Banking	Warrant	13-Mar-01
9	LOXLEY	Services / Commerce	Stock	23-Feb-01
10	MATCH	Services / Media & Publishing	Warrant	3-Feb-04
11	MPT	Technology / Electronic Components	Warrant	24-May-02
12	NEP	Industrials / Packaging	Warrant	20-Apr-04
13	NNCL	Property & Construction / Property Development	Stock	24-Feb-05
14	SE-ED	Services / Media & Publishing	Warrant	3-Dec-01
15	SPORT	Services / Media & Publishing	Warrant	19-Aug-02
16	SSEC	Financials / Finance and Securities	Warrant	27-Nov-03
17	THL	Resources / Mining	Stock	16-Apr-04
18	UBC	Services / Media & Publishing	Warrant	16-Nov-01
19	US	Financials / Finance and Securities	Warrant	4-Oct-02

* ICT denotes Information & Communication Technology.

Table 3B: A listing of ESOP issuances separated by discount of ESOP

This table presents a listing of ESOP issuances separated by discount of ESOP. To examine the effects of ESOP discount, I consider only warrant ESOP as for stock ESOP, it is generally issued at discount, otherwise; employee had better buy such stock in the market. Therefore, there is no incentive associated with whether the strike price is less than or greater than the market price for stock ESOP. It is not appropriate to include them in the study, accordingly. Thus, there will be only 62 out of total 66 ESOP issuances available for testing. By the word "Discount of ESOP" in this study, it is classified into two groups; K < S and K > S, while K and S denote, respectively, the strike price of ESOP warrant and the closing price of the underlying stock on day t-1.

No.	Symbol	Industry/Sector	Approval Date
		K < S	
1	ADVANC	Technology / ICT*	27-May-03
2	ASP	Financials / Finance and Securities	24-Jul-03
3	ASP	Financials / Finance and Securities	18-Dec-04
4	ATC	Industrials / Petrochemicals & Chemicals	2-Feb-04
5	BCP	Resources / Energy & Utilities	6-Aug-04
6	CK	Property & Construction / Property Development	29-Mar-04
7	CWT	Industrials / Automotive	28-Jan-05
8	EASTW	Resources / Energy & Utilities	10-Aug-04
9	HANA	Technology / Electronic Components	8-Oct-02
10	HMPRO	Services / Commerce	31-Aug-04
11	KK	Financials / Banking	13-Mar-01
12	KMC	Property & Construction / Property Development	13-May-05
13	LH	Property & Construction / Property Development	7-Feb-02
14	LH	Property & Construction / Property Development	7-Mar-03
15	LH	Property & Construction / Property Development	3-Mar-04
16	LH	Property & Construction / Property Development	7-Apr-05
17	MATCH	Services / Media & Publishing	3-Feb-04
18	MINOR	Services / Commerce	27-Jul-04
19	MINOR	Services / Commerce	29-Jun-05
20	MODERN	Consumer Products / Home & Office Products	30-Nov-04
21	NEP	Industrials / Packaging	20-Apr-04
22	PTTEP	Resources / Energy & Utilities	2-Jul-03
23	PTTEP	Resources / Energy & Utilities	2-Jul-04
24	QH	Property & Construction / Property Development	18-Jun-02
25	QH	Property & Construction / Property Development	11-Sep-03
26	QH	Property & Construction / Property Development	10-Sep-04
27	SAMART	Technology / ICT*	18-Jul-03
28	SAMART	Technology / ICT*	9-Sep-04
29	SATTEL	Technology / ICT*	31-May-05
30	SE-ED	Services / Media & Publishing	3-Dec-01
31	SICCO	Financials / Finance and Securities	23-May-02
32	SICCO	Financials / Finance and Securities	8-May-03
33	SPORT	Services / Media & Publishing	19-Aug-02
34	SSEC	Financials / Finance and Securities	27-Nov-03
35	TISCO-P	Financials / Banking	29-May-01
36	TISCO-P	Financials / Banking	16-Aug-02
37	TISCO-P	Financials / Banking	5-Jun-03
38	TISCO-P	Financials / Banking	19-Aug-04
39	TUF	Agro & Food Industry / Food and Beverage	8-Jan-04
40	US	Financials / Finance and Securities	4-Oct-02
41	ZMICO	Financials / Finance and Securities	6-Aug-04
42	THAI	Services / Transportation & Logistics	18-Feb-04

Table 3B: A listing of ESOP issuances separated by discount of ESOP *(continued)*

No.	Symbol	Industry/Sector	Approval Date
		K > S	
1	ADVANC	Technology / ICT*	27-Mar-02
2	ADVANC	Technology / ICT*	31-May-04
3	ADVANC	Technology / ICT*	31-May-05
4	BANPU	Resources / Energy & Utilities	22-Nov-01
5	CSL	Technology / ICT*	27-May-05
6	HANA	Technology / Electronic Components	27-Oct-04
7	INET	Technology / ICT*	1-Apr-04
8	ITV	Services / Media & Publishing	31-May-05
9	JAS	Technology / ICT*	26-Mar-02
10	KBANK	Financials / Banking	29-Nov-01
11	KBANK	Financials / Banking	2-Dec-02
12	MAJOR	Services / Media & Publishing	27-May-03
13	MPT	Technology / Electronic Components	24-May-02
14	PTTEP	Resources / Energy & Utilities	30-Jul-02
15	SAMART	Technology / ICT*	28-Jun-02
16	SATTEL	Technology / ICT*	27-Mar-02
17	SHIN	Technology / ICT*	27-Mar-02
18	SHIN	Technology / ICT*	31-May-05
19	SICCO	Financials / Finance and Securities	9-Oct-01
20	UBC	Services / Media & Publishing	16-Nov-01

* ICT denotes Information & Communication Technology.

Table 4B: A listing of ESOP issuances separated by type of business

This table presents a listing of ESOP issuances separated by type of business that the sponsoring companies are in. However, as, by the definition of the SET, the ESOP sponsoring companies are in varied industries, therefore; investigating the consequences separately by each industry may lead to unclear results due to the limitation of sample size. Thus, to avoid such a problem, I classify the ESOP sponsoring companies into only two sectors, real sector and services sector. The grouping for each sector is shown below.

No.	Symbol	Industry/Sector
	Services Sector	
1	KBANK	Financials / Banking
2	KK	Financials / Banking
3	TISCO-P	Financials / Banking
4	ASP	Financials / Finance and Securities
5	SICCO	Financials / Finance and Securities
6	US	Financials / Finance and Securities
7	ZMICO	Financials / Finance and Securities
8	SSEC	Financials / Finance and Securities
9	HMPRO	Services / Commerce
10	MINOR	Services / Commerce
11	LOXLEY	Services / Commerce
12	ITV	Services / Media & Publishing
13	MATCH	Services / Media & Publishing
14	SE-ED	Services / Media & Publishing
15	SPORT	Services / Media & Publishing
16	UBC	Services / Media & Publishing
17	MAJOR	Services / Media & Publishing
18	THAI	Services / Transportation & Logistics
19	ADVANC	Technology / Information & Communication Technology
20	CSL	Technology / Information & Communication Technology
21	INET	Technology / Information & Communication Technology
22	JAS	Technology / Information & Communication Technology
23	SAMART	Technology / Information & Communication Technology
24	SATTEL	Technology / Information & Communication Technology
25	SHIN	Technology / Information & Communication Technology
	Real Sector	
1	TUF	Agro & Food Industry / Food and Beverage
2	MODERN	Consumer Products / Home & Office Products
3	CWT	Industrials / Automotive
4	NEP	Industrials / Packaging
5	ATC	Industrials / Petrochemicals & Chemicals
6	CK	Property & Construction / Property Development
7	KMC	Property & Construction / Property Development
8	LH	Property & Construction / Property Development
9	QH	Property & Construction / Property Development
10	NNCL	Property & Construction / Property Development
11	NWR	Property & Construction / Property Development
12	BANPU	Resources / Energy & Utilities
13	BCP	Resources / Energy & Utilities
14	EASTW	Resources / Energy & Utilities
15	PTTEP	Resources / Energy & Utilities
16	THL	Resources / Mining
17	HANA	Technology / Electronic Components
18	MPT	Technology / Electronic Components