THE ANALYSIS OF PREDICTIVE VALUE OF EARNINGS AND CASH FLOWS ON FUTURE FIRMS' PERFORMANCE

KUSUMA DAMPITAKSE

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY PROGRAM IN BUSINESS ADMINISTRATION

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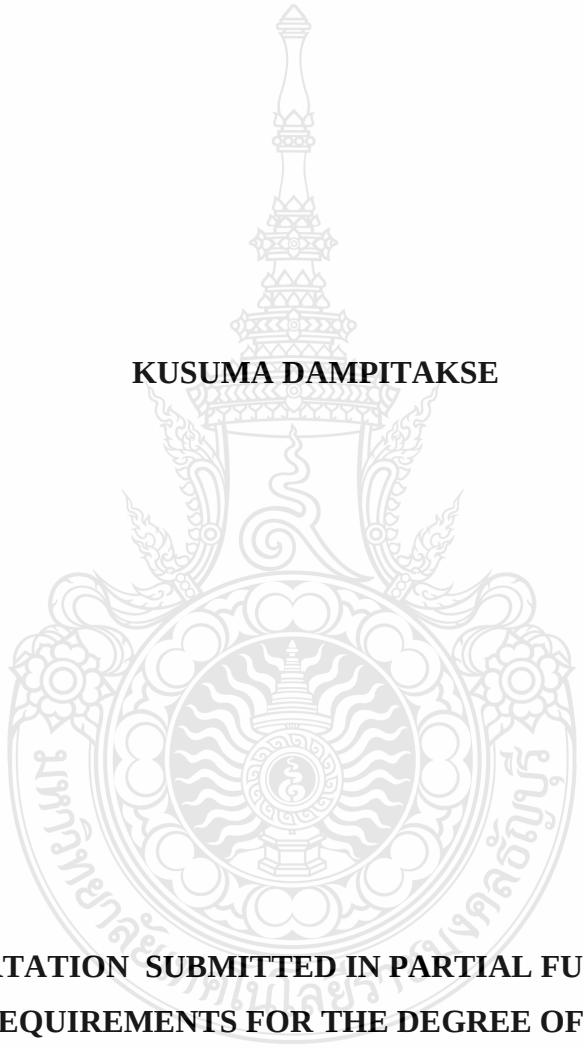

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Dissertation Title	The Analysis of Predictive Value of Earnings and Cash Flows on Future Firms' Performance
Name Surname	Miss Kusuma Dampitakse
Program	Business Administration
Dissertation Advisor	Associate Professor Panarat Panmanee, Ph.D.
Academic Year	2014

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(Associate Professor Panarat Panmanee, Ph.D.)

Approved by the Faculty of Business Administration, Rajamangala University of Technology Thanyaburi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

.....Dean of Faculty of Business Administration

(Associate Professor Chanongkorn Kuntonbutr, D.B.A.)

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ABSTRACT

The objectives of this study were to investigate the predictive value of earnings, comprehensive income, operating cash flows, and free cash flows on future firms' performance; future earnings and future cash flows, and to investigate the effects of financial and non-financial factors on the predictability of past financial performance. In addition, this study aimed to investigate the predictive value of combination of past financial performance. Data were collected from financial statements of listed companies on the Stock Exchange of Thailand in Agro & Food Industry and Technology Industry during the study period from 2005 to 2010. The statistical analysis was conducted using regression statistical method.

The results revealed that earnings had the highest predictive value among past financial performances for future earnings prediction in both industries. The findings stated that past earnings was appropriated to predict future cash flows in Agro & Food Industry while past operating cash flow was superior to future cash flows prediction in Technology Industry. The statistical results showed that firm size and market risk significantly affected the predictability of past financial performance. The findings showed that combination of past financial performances strengthened the predictability of past financial performances.

These findings would be meaningful for financial analysts to predict performances of listed companies. They could be also helpful for creditors and investors to apply for the appraisal of future performances of business entity. Furthermore, the management team could be able to employ the findings for planning and decision making. Finally, the professional organization shall concern about the usefulness of each financial performance in forecasting future performances.

Keywords: firms' performance, prediction model, earnings, comprehensive income, operating cash flows

Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and beliefs, contains on material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my dissertation, when deposited in the university library, being available for loan and photocopying.

Kusuma Dampitakse

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List of Abbreviations

Adj. R^2	Adjusted R^2 : The coefficients of determination
AGRO	Agro & Food Industry
$AUDITC_{i,t}$	Auditor Change of firm i at year t
$BIG4_{i,t}$	BIG4 Audit Firm of firm i at year t
$CFO_{i,t}$	Net operating cash flows in the predicted year of firm i at year t
$CFO_{i,t+n}$	Net operating cash flows in the predicted year of firm i at year t+n
$CI_{i,t}$	Comprehensive Income of firm i at year t
$EARN_{i,t}$	Earnings before interest and tax or operating income of firm i at year t
$EARN_{i,t+n}$	Earnings before interest and tax or operating income of firm i at year t+n
$FCF_{i,t}$	Free Cash flows of firm i at year t
$GROWTH_{i,t}$	Firm Growth of firm i at year t
IASB	International Accounting Standard Board
POOL	Pooled Industries combine Technology Industry and Agro & Food Industry
$RISK_{i,t}$	Market Risk of firm i at year t
SET	The Stock Exchange of Thailand
Sig	Significant level
$SIZE_{i,t}$	Firm Size of firm i at year t
TECH	Technology Industry
VIF	The Variance Inflation Factor
$ZCFO_{i,t}$	Standardize of net operating cash flows in the predicted year of firm i at year t
$ZCFO_{i,t+n}$	Standardize of net operating cash flows in the predicted year of firm i at year t+n
$ZCI_{i,t}$	Standardize of comprehensive Income of firm i at year t
$ZEARN_{i,t}$	Standardize of earnings before interest and tax or operating income of firm i at year t
$ZEARN_{i,t+n}$	Standardize of earnings before interest and tax or operating income of firm i at year t+n
$ZFCF_{i,t}$	Standardize of free cash flows of firm i at year t
$ZGROWTH_{i,t}$	Standardize of firm growth of firm i at year t
$ZRISK_{i,t}$	Standardize of market risk of firm i at year t
$ZSIZE_{i,t}$	Standardize of firm size of firm i at year t

CHAPTER 1

INTRODUCTION

1.1 Background and Statement of the Problems

Financial reports have been prepared for continuing entity, as a 'going concern' assumption. International Financial Standards Board (2010) stated that the objectives of financial reporting were to inform about the financial position, performance, and changes in financial position to meet the needs of all users. However, limitations of financial reports were presenting only past events and not including non-financial information.

Many investors and management team would like to forecast the ability to generate future organization performances. Besides, many researchers studied methods to predict future performances by using random walk model and regression model (Greenberg, Johnson, & Ramesh, 1986; Arnold, Clubb, Manson, & Wearing, 1991; Dechow, 1994; Barth, Cram, & Nelson, 2001; Kim & Kross, 2005; Arthur, Cheng & Czernkowski, 2010). They used financial information including operating cash flows, earnings, and accrual components of the past financial performances to predict the future cash flows and earnings (Dechow, 1994). An important source for investors is financial analysts who used more information from public announcement rather than historical earnings data. Consequently, the analysts were optimistic while the forecast amounts exceed true earnings (Das, Levine, & Sivaramakrishnan, 1998; Easton & Sommers, 2007).

Previous studies in many countries stated different results. Some evidences showed that earnings was better predictor whereas some findings stated that cash flows had better predictability. Moreover, some studies revealed that earning was better indicator for future performance (earning) than cash flows (Greenberg et al., 1986; Rivera, 1991; Daraghma, 2013), and some studies stated that earning had better predictive ability for future cash flows than cash flows (Greenberg et al., 1986; Murdoch & Krause, 1990; Arnold et al., 1991; Dechow, 1994; Dechow, Kothari, & Watts, 1998; Kim & Kross, 2005; Jordan, Waldron, & Clark, 2007; Moeinaddin, Ardakani, & Akhoonadzadeh, 2012; Daraghma, 2013).

The Operating Cash Flow (CFO) was used for performances predicting, some researches shown that CFO had relation with firms' performance, those studies focus on CFO versus earnings (Greenberg et al., 1986; Bowen, Burgstahler, & Daley, 1986; Finger, 1994; Murdoch & Krause, 1990; Arnold et al., 1991; Dechow, 1994; Dechow et al., 1998; Barth et al., 2001; Al-Attar & Hussain, 2004; Seng, 2006). Researchers in different countries studied the ability of past financial performance, and the solutions were different results (Jordan et al., 2007; Farshadfar, Ng, & Brimble, 2008; Arthur et al., 2010; Telmoudi, Noubbigh, & Ziadi, 2010; Daraghma, 2013; Takhtaei & Karimi, 2013). The results from those researches were not consistent and appropriated for all countries and time period, and this research was then conducted as a result.

Besides, the previous findings on prediction model of future firm performance were not consensus which earnings or cash flows could be the better predictor. This research aimed to prove what factor has influenced future firm performance; future earnings, and future cash flows. The outcome would show how the one better predictor

on future firm financial performance for special industry. However, in order to close the gap of previous study, the combination of past financial performances shall be investigated for the appropriated prediction model.

1.2 Objective of the Study

The objectives of this study were:

1. To investigate the effects of earnings, comprehensive income, operating cash flow, and free cash flow on future firm financial performance; future earnings, and future cash flows;

2. To investigate the relevance of financial and non-financial factors on future firm financial performance; future earnings, and future cash flows; and

3. To investigate the appropriated model for predicting future firm performance.

1.3 Research Questions and Hypotheses

1.3.1 Research Questions

In order to prove the objectives of this study, three research questions were conducted as follows:

1. Which factors have the ability to predict future firm performance of Thai listed companies in Agro & Food Industry and Technology Industry (earnings, comprehensive income, operating cash flows, and free cash flows)?;

2. Did the financial and non-financial factors have the effects on future firm performance in terms of future earnings and future cash flows?; and

3. Was the combination of past financial performance plus financial and non-financial performance appropriated to predict future firm performance?

1.3.2 Hypotheses

Greenberg, Johnson, and Ramesh (1986) studied the predictability of accounting information both cash basis and accrual basis, and the result showed that earnings was a better predictor than cash flows. In the same year, Bowen, Burgstahler, and Daley (1986) found the different result stating that cash flows was better predictive ability than earnings.

Many previous researches had investigated the predictability of both earnings and cash flows, but they did not provide final conclusion on which one was better than the other one. These were studied in the United States of America, United Kingdom, New Zealand, etc., and the results were different.

On the other hand, there were financial and non-financial factors that had the relationship with the firms' performance. According to contingency theory, Epstein (2004) stated that firm size may affect management system and internal control which related to performance of organization. Barth, Beaver, and Hand (1999), Kim and Kross (2005), and Lorek and Willinger (2009) stated that firm size was associated with firms' performance. Therefore, large firm size should have better internal control and systematic operation, and thus firms' performance should have different rate of volatility.

Furthermore, agency theory explained about conflict between principles and agents that caused to balance the power of executive with audit process. The previous studies revealed that auditor quality decreased the agency cost, and the big firm auditors

should preserve their reputation by controlling and maintaining the audit standard (Francis, Maydew, & Sparks, 1999; St. Pierre & Anderson, 1984).

In addition, investors basically used market risk to appraise the future performance of listed companies (Blitz, Huij, & Martens, 2011). They found that beta was correlated with future performance, and higher risk was meant higher expected returned while low risk stood for lower expected returns (Beaver, Kettler, & Scholes, 1970; Schwerdt & Wendland, 2010).

Finally, Barth, Beaver, and Hand (1999) and Charitou, Clubb, and Andreou (2001) found that growth rate of firms influenced performance. Thus, different growth rate should make different impacts on firm's performance. Meanwhile, Fairfield, Whisenant, and Yohn (2003), Richardson, Sloan, Soliman, and Tuna (2005), Cooper, Gulen, and Schill (2008), and Cao (2011) stated that firm growth rate related to future profitability.

According to the research questions, previous studies above, and literature review in chapter two, this study was conducted to determine three hypotheses in the following paragraphs.

The first hypothesis was to examine the relationship between past and future performances:

H1: Past financial performance has a predictive ability for future firm performance.

Past financial performances consisted of earnings before interest and tax (EARN), comprehensive income (CI), operating cash flows (CFO), and free cash flows (FCF). To test this hypothesis, each of four variables was classified into one-year-

ahead, two-year-ahead, and three-year-ahead to investigate the predictive ability for future earnings and future cash flows.

H1.1 Past financial performances have the predictability for one-year-ahead earnings, divided into four sub hypotheses as follows:

H1.1.1 $EARN_t$ has the predictive ability for one-year-ahead earnings;

H1.1.2 CI_t has the predictive ability for one-year-ahead earnings;

H1.1.3 CFO_t has the predictive ability for one-year-ahead earnings; and

H1.1.4 FCF_t has the predictive ability for one-year-ahead earnings.

H1.2 Past financial performances have the predictability for two-year-ahead earnings, divided into four sub hypotheses as follows:

H1.2.1 $EARN_t$ has the predictive ability for two-year-ahead earnings;

H1.2.2 CI_t has the predictive ability for two-year-ahead earnings;

H1.2.3 CFO_t has the predictive ability for two-year-ahead earnings; and

H1.2.4 FCF_t has the predictive ability for two-year-ahead earnings.

H1.3 Past financial performances have the predictability for three-year-ahead earnings, divided into four sub hypotheses as follows:

H1.3.1 $EARN_t$ has the predictive ability for three-year-ahead earnings;

H1.3.2 CI_t has the predictive ability for three-year-ahead earnings;

H1.3.3 CFO_t has the predictive ability for three-year-ahead earnings; and

H1.3.4 FCF_t has the predictive ability for three-year-ahead earnings.

H1.4 Past financial performances have the predictability for one-year-ahead cash flows, divided into four sub hypotheses as follows:

H1.4.1 $EARN_t$ has the predictive ability for one-year-ahead cash flows;

H1.4.2 CI_t has the predictive ability for one-year-ahead cash flows;

H1.4.3 CFO_t has the predictive ability for one-year-ahead cash flows; and

H1.4.4 FCF_t has the predictive ability for one-year-ahead cash flows.

H1.5 Past financial performances have the predictability for two-year-ahead cash flows, divided into four sub hypotheses as follows:

H1.5.1 $EARN_t$ has the predictive ability for two-year-ahead cash flows;

H1.5.2 CI_t has the predictive ability for two-year-ahead cash flows;

H1.5.3 CFO_t has the predictive ability for two-year-ahead cash flows; and

H1.5.4 FCF_t has the predictive ability for two-year-ahead cash flows.

H1.6 Past financial performances have the predictability for three-year-ahead cash flows, divided into four sub hypotheses as follows:

H1.6.1 $EARN_t$ has the predictive ability for three-year-ahead cash flows;

H1.6.2 CI_t has the predictive ability for three-year-ahead cash flows;

H1.6.3 CFO_t has the predictive ability for three-year-ahead cash flows; and

H1.6.4 FCF_t has the predictive ability for three-year-ahead cash flows.

The second hypothesis investigated the association between financial and non-financial factors with future firm performances.

H2: Financial and non-financial factors have the effects on the predictability of future firm performance.

Financial factors comprised firm size and firm growth while non-financial factors consisted of auditor quality (auditor type and audit firm change) and market risk.

H2.1 Financial and non-financial factors have the effects on the predictability for one-year-ahead earnings.

H2.1.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for one-year-ahead earnings.

H2.1.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for one-year-ahead earnings.

H2.1.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for one-year-ahead earnings.

H2.1.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for one-year-ahead earnings.

H2.2 Financial and non-financial factors have the effects on the predictability for two-year-ahead earnings.

H2.2.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for two-year-ahead earnings.

H2.2.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for two-year-ahead earnings.

H2.2.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for two-year-ahead earnings.

H2.2.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for two-year-ahead earnings.

H2.3 Financial and non-financial factors have the effects on the predictability for three-year-ahead earnings.

H2.3.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for three-year-ahead earnings.

H2.3.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for three-year-ahead earnings.

H2.3.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for three-year-ahead earnings.

H2.3.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for three-year-ahead earnings.

H2.4 Financial and non-financial factors have the effects on the predictability for one-year-ahead cash flows.

H2.4.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for one-year-ahead cash flows.

H2.4.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for one-year-ahead cash flows.

H2.4.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for one-year-ahead cash flows.

H2.4.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for one-year-ahead cash flows.

H2.5 Financial and non-financial factors have the effects on the predictability for two-year-ahead cash flows.

H2.5.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for two-year-ahead cash flows.

H2.5.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for two-year-ahead cash flows.

H2.5.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for two-year-ahead d cash flows.

H2.5.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for two-year-ahead cash flows.

H2.6 Financial and non-financial factors have the effects on the predictability for three-year-ahead cash flows

H2.6.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for three-year-ahead cash flows.

H2.6.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for three-year-ahead cash flows.

H2.6.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for three-year-ahead cash flows.

H2.6.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for three-year-ahead cash flows.

The third hypothesis investigated the association among the combination of past financial performance plus financial and non-financial factors with future firm performances.

H3: Combination of past financial performance has a predictive ability for future firm performance.

The combination of past financial performances consisted of EARN, CI, CFO, and FCF. Financial factors comprised firm size and firm growth while non-financial factors consisted of auditor quality (auditor type and audit firm change) and market risk.

To test this hypothesis, each of four variables was classified into one-year-ahead, two-year-ahead, and three-year-ahead to investigate the predictive ability for future earnings and future cash flows.

H3.1 Combination of past financial performances has the predictability for future earnings, divided into three sub hypotheses as follows.

H3.1.1 Combination of past financial performances has the predictability for one-year-ahead earnings.

H3.1.2 Combination of past financial performances has the predictability for two-year-ahead earnings.

H3.1.3 Combination of past financial performances has the predictability for three-year-ahead earnings.

H3.2 Combination of past financial performances has the predictability for future cash flows, divided into three sub hypotheses as follows.

H3.2.1 Combination of past financial performances has the predictability for one-year-ahead cash flows.

H3.2.2 Combination of past financial performances has the predictability for two-year-ahead cash flows.

H3.2.3 Combination of past financial performances has the predictability for three-year-ahead cash flows.

1.4 Definition of Terms

Future Firms' performance: performance of organization, especially financial performance which was measured in terms of earnings and cash flows.

Earnings (EARN): earnings before interest and tax from Comprehensive Income statement.

Comprehensive Income (CI): change in equity during the accounting period which is the result from income and expense recognition including reclassification adjustments.

Free Cash flows (FCF): free cash after investing in capital expenditure to maintain business activities.

Operating Cash flows (CFO), or cash flow from operation: net cash inflow and outflow from operating from statement of cash flows.

Auditor Quality: quality of financial disclosure depending on auditor type (Big N) and auditor changes.

Firm Size: size of organization measured by the ending of fiscal year market value of equity

Growth: firm growth calculated from changing in total assets with the prior year.

Market Risk: risk of firm which was estimated from market price compared with market index and calculated by SET, named BETA.

1.5 Delimitation and Limitation of the Study

In this research, there was limitation of collecting data. Because some population has just registered with SET after 2005, there were therefore missing data from new comers in SET, especially BETA value.

Financial disclosure of Thai listed companies should disclose required data from underlying with Thai Financial Report Statement (TFRS) which follow International Financial Report Statement (IFRS). Therefore, since TFRS and IFRS require continuous improvement, some financial information shall be changed to measurements or valuations due to the accounting standards changing.

This study focused on Thai listed companies in Agro & Food Industry and Technology Industry only. Due to generalization to other industries, the similar environment and characteristic of each industry shall be considered.

Another limitation of this study was the statistic used in hypothesis testing. There were various statistic methods appropriated to the type of data. However, this study focused on linear regression statistic method only.

CHAPTER 2

REVIEW OF THE LITERATURE

In this chapter, it focused on the background of the industries, the review of the concepts, and theoretical and practical perspectives that relevant to this research such as the stock exchange of Thailand, performance and agency theory, financial and non-financial factors, and prediction future performance model.

2.1 The Stock Exchange of Thailand

The Stock Exchange of Thailand (SET) had been established since 1975 (SET, 2011), and the primary roles of SET were divided into three functions. First of all, the SET should serve as securities trading center including efficient trading system providing. Second, the SET should concern with related trading transactions such as clearing house and securities registrar. Finally, the SET has responsibility for other business due to the Securities and Exchange Commission approval. The main operations of the SET are securities listing, guidance for information disclosure, member supervision, information dissemination, and investor education.

The SET classified listed companies into 8 industries and 27 sectors as shown in Table 2.1. Property & Construction Industry was the biggest industry. It consisted of 111 listed companies and had the highest share volume, but Resource industry had the highest trading value. This research focused only on Agro & Food Industry and Technology Industry. Even though Agro & Food Industry (AGRO) did not have the highest shares volume and trading value, it had the highest SET index (Table 2.2) and

total return index (Table 2.3). Therefore, AGRO was one of the interesting trading shares. AGRO has been divided into two sectors including Agribusiness and Food & Beverage. Agribusiness consisted of fifteen companies while Food & Beverage comprised twenty six companies.

On the other hand, Technology Industry (TECH) had high volume of sales and profit and high development and innovation which caused changes. TECH comprised two sectors including Electronic Components and Information & Communication Technology. TECH had an increase in total return index (Table 2.3) and consisted of eleven electronic components companies and twenty seven communication technology companies. Due to the comparison of two dissimilar industries, it was apparent that each industry had different predictability of relevant factors of this study.

Table 2.1 Industry and sector classification (effective since 4th January 2011)

Industry		**Sector**	**Sector Abbreviation**	**No. of companies**
Agro & Food Industry	AGRO	Agribusiness	AGRI	15
		Food & Beverage	FOOD	26
Consumer Products	CONSUMP	Fashion	FASHION	23
		Home & Office Products	HOME	10
			PERSON	6
Financials	FINCIAL	Banking	BANK	11
		Finance & Securities	FIN	32
		Insurance	INSUR	17
Industrials	INDUS	Automotive	AUTO	19
		Industrial Materials & Machinery	IMM	7
		Paper & Printing Materials	PAPER	2
		Petrochemicals & Chemicals	PETRO	12
		Packaging	PKG	13
		Steel	STEEL	27
Property & Construction	PROPCON	Construction Materials	CONMAT	19
		Property Fund	PFUND	62
		Property Development	PROP	34

Table 2.1 Industry and sector classification (effective since 4th January 2011) (Cont.)

Industry		Sector		No. of companies
Resources	RESOURC	Energy & Utilities	ENERG	25
		Mining	MINE	2
Services	SERVICE	Commerce	COMM	13
		Health Care Services	HELTH	13
		Media & Publishing	MEDIA	26
		Professional Services	PROF	3
		Tourism & Leisure	TOURISM	10
		Transportation & Logistics	TRANS	16
Technology	TECH	Electronic Components	ETRON	11
		Information & Communication Technology	ICT	27

Source: SET (http://www.set.or.th/en/products/index/setindex_p2.html, accessed on 3rd Sep. 2011)

Table 2.2 SET Index by industry

Industry	Last	Change	%Change	Volume (Shares)	Value ('000 Baht)
AGRO	337.77	+0.85	+0.25	53,902,100	1,001,724
CONSUMP	124.71	-0.30	-0.24	45,867,100	173,783
FINCIAL	135.12	-0.32	-0.24	212,547,150	2,948,388
INDUS	128.23	-1.46	-1.13	295,350,500	1,753,967
PROPCON	85.67	-0.56	-0.65	863,177,200	3,113,620
RESOURC	182.55	-2.17	-1.17	138,970,550	5,068,078
SERVICE	176.03	+0.08	+0.05	316,124,400	3,246,508
TECH	111.30	+1.73	+1.58	619,985,500	3,094,353

Source: SET (http://marketdata.set.or.th/mkt/sectorialindices.do, accessed on 3rd Sep. 2011)

Table 2.3 Total Return Index by industry as of 2nd September 2011

Industry	Index Name	TRI	Change	%Change
Agro & Food Industry	AGRO TRI	5,198.58	13.07	0.25
Consumer Products	CONSUMP TRI	1,775.60	-4.31	-0.24
Financials	FINCIAL TRI	1,716.43	-0.90	-0.05
Industrials	INDUS TRI	1,861.30	-21.28	-1.13
Property & Construction	PROPCON TRI	1,248.52	-8.15	-0.65
Resources	RESOURC TRI	2,484.97	-29.34	-1.17
Services	SERVICE TRI	2,403.35	1.06	0.04
Technology	TECH TRI	1,910.13	29.76	1.58

Source: SET (http://www.set.or.th/en/market/tri.html accessed on 3rd Sep. 2011)

2.1.1 Agro & Food Industry

Agro & Food Industry was a main industry to drive Thai economics. This industry consisted of Food & Beverage sector comprising food processing and food transforming, and Agribusiness (or Agricultural manufacturers). Thai Government Policy was formulated to claim Agro & Food Industry as a kitchen of the world. According to the Office of Industrial Economics (2009), it was reported that world agriculture products were affected from global warming. Nevertheless, this situation also had an impact to Thailand but was less than other countries. For example, fishing manufacture was affected from ocean temperature, which decreased fish volume causing higher production cost. However, this did not much affect Agro & Food Industry.

Nowadays, customer behavior was changed and focused on healthy food and drink. People's lifestyle was changed, and most of them spent time in office causing increasing demand for transformed and convenient food. Accordingly, the opportunity

of Thai Agro & Food Industry had increased due to rising of demand from greater population whereas supply for food was decreased (The Office of Industrial Economics, 2012a, 2012b).

Regarding Agro & Food Industry, the strength of the industry was geography for agriculture to which the raw materials supply Food & Beverage sector. The second strength was educated labors with low wages and diversified products and continuous improvement. On the other hand, weaknesses of the industry arose from competition with lower wage countries such as Vietnam and logistical problem. Considering food technology, it was found that small and medium enterprises used only basic transforming technology while large firms used hi-tech for freezing and pasteurizing; however, those technologies were moving slowly (Department of Trade Negotiation, 2006).

Table 2.4 and Figure 2.1 showed financial information of Agro & Food Industry which was continuous increasing. In other words, sales had been declining in Agribusiness sector while increasing in Food & Beverage sector all the time excepting in 2009 when there was a small drop because of global economic crisis. Consequently, focusing on net income, the result was similar to sales as shown in Table 2.5 and Figure 2.2. Agribusiness sector's sales were fluctuated due to climate change. In conclusion, sales and net income of Agro & Food Industry tended to increase at all the time.

Table 2.4 Agro & Food Industry's annual sales from 2006 to 2012.

unit: thousand Baht

year / Sector	2006	2007	2008	2009	2010	2011	2012
Food & Beverage	154,406	158,410	202,126	197,698	402,364	478,902	665,360
Agriculture	228,933	252,931	294,500	278,375	150,316	209,707	174,527
Agro & Food Industry	383,339	411,341	496,626	476,073	552,680	688,609	839,887

Source: SET, accessed on 5th Sep. 2013

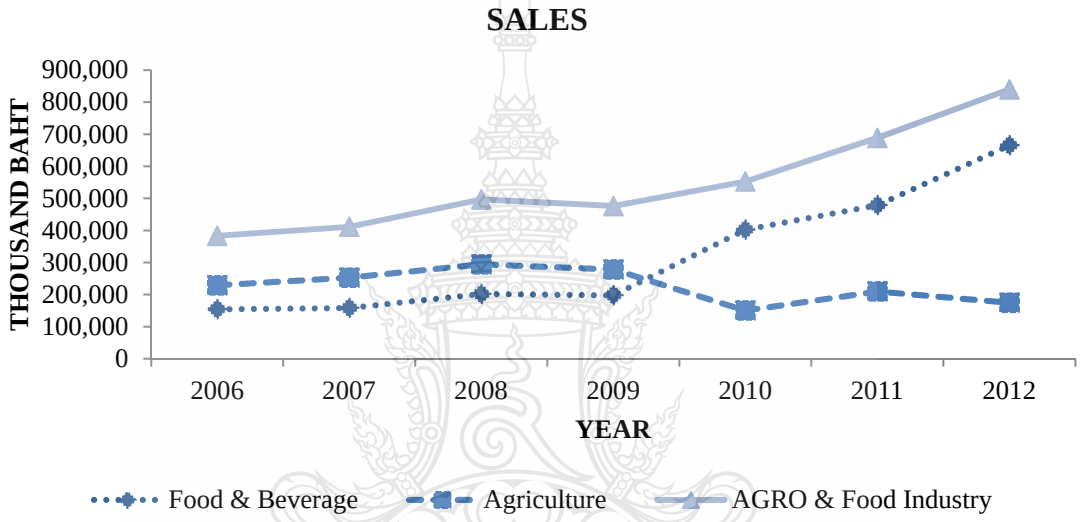

Figure 2.1 Agro & Food Industry's annual sales from 2006 to 2012.
Source: SET, accessed on 5th Sep. 2013

Table 2.5 Agro & Food Industry's net income from 2006 to 2012.

unit: thousand Baht

year / Sector	2006	2007	2008	2009	2010	2011	2012
Food & Beverage	5,486	3,124	9,713	15,963	25,046	33,413	40,220
Agriculture	7,654	6,950	8,366	13,659	7,094	5,915	3,546
Agro & Food Industry	**13,140**	**10,074**	**18,079**	**29,622**	**32,140**	**39,328**	**43,766**

Source: SET, accessed on 5th Sep. 2013

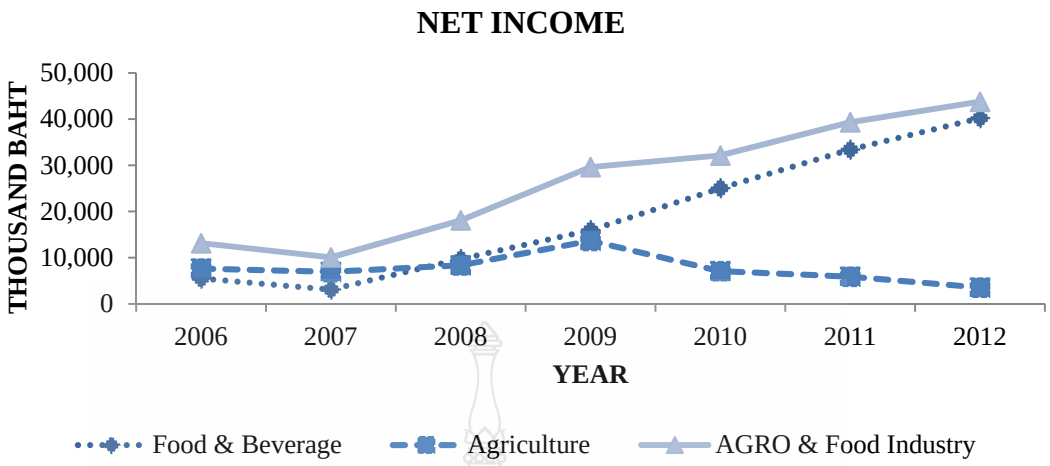

Figure 2.2 Agro & Food Industry's net income from 2006 to 2012.
Source: SET, accessed on 5th Sep. 2013

2.1.2 Technology Industry

Technology Industry has been invested with huge money because of high value of hi-tech infrastructures and software and rapidly changed (SIPA & NECTEC, 2010). In this era, it was apparent that Technology Industry had a high demand in order to support other industries which use computerized in their operation and communication (The Office of Industrial Economics, 2012b).

According to SWOT analysis of Technology Industry, it was found that the strengths of Information and Communication Technology sector were stable, high competition and hard entrance for new comers. The companies' performance in this sector, such as sales and profit, has been increased because of high requirement of consumer market. Meanwhile, the strengths of Electronic components sector has been claimed in acceptable and logistic quality control whereas the weakness of industry was found due to two serious factors including lacking of information system manpower and scarcity of research and development to formulate new raw materials or components rather than import from aboard (Department of Trade Negotiation, 2006).

Growth of industry had been reflected from innovation and development of electronics and communication equipment to meet a need of customers. Since trend of people life style had changed, large manufacturers in the United State of America, Japan, Korea, and so on have invested in research and development to produce new products with short life cycle. For this reason, the new comer had to have a very huge capital to compete in this industry (Department of Trade Negotiation, 2006).

As shown in Table 2.6 and Figure 2.3, sales of Information and Communication Technology sector were increased over the time while Electronic components sector had decreased sales in 2009 due to global crisis. On the other hand, net income of Technology Industry tended to increase over the time, except in 2009 causing from global crisis and in 2011 (Table 2.7 and Figure 2.4) facing with natural disaster "flooding" which reflected to electronic components sector from lack of raw materials, production and logistic problem (The Office of Industrial Economics, 2012a).

Table 2.6 Technology Industry's annual sales from 2006 to 2012.

year / Sector	2006	2007	2008	2009	2010	2011	2012
Information and Communication Technology	311,128	371,465	384,574	381,059	390,080	438,081	474,968
Electronic components	185,499	190,842	207,156	188,029	229,234	227,247	231,840
Technology Industry	496,627	562,307	591,730	569,088	619,314	665,328	706,808

Source: SET, accessed on 5th Sep. 2013

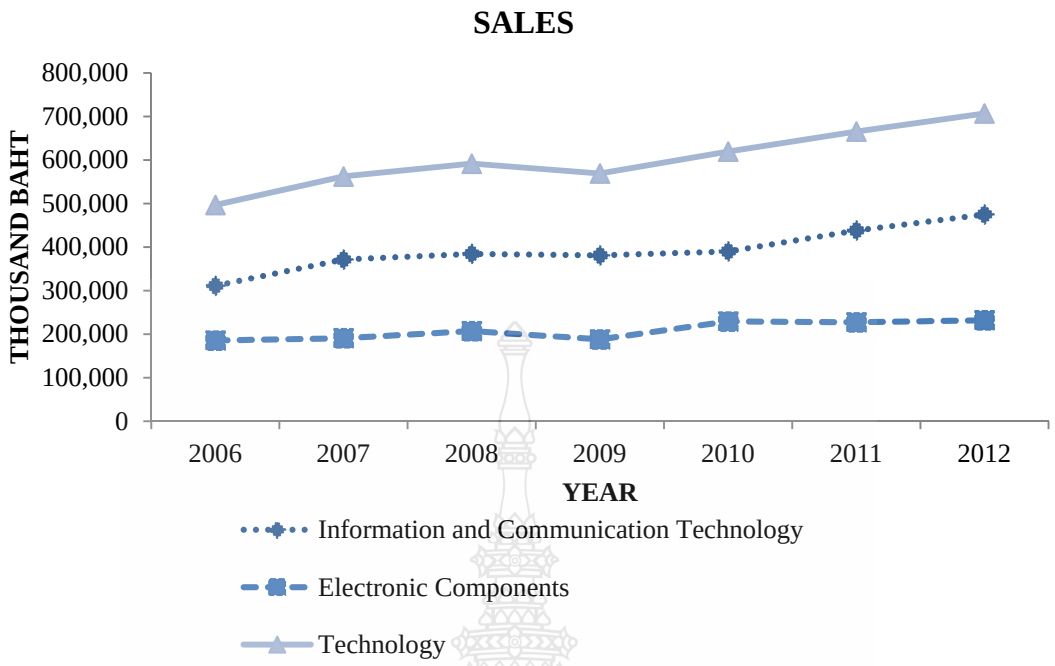

Figure 2.3 Technology Industry's annual sales from 2006 to 2012.
Source: SET, accessed on 5th Sep. 2013

Table 2.7 Technology Industry's net income from 2006 to 2012.

year / Sector	2006	2007	2008	2009	2010	2011	2012
Information and Communication Technology	19,438	28,666	23,761	30,760	43,966	52,103	58,998
Electronic component	7,019	9,419	8,122	6,613	11,381	2,143	9,847
Technology	26,457	28,666	31,883	37,373	55,347	54,246	68,844

Source: SET accessed on 5th Sep. 2013

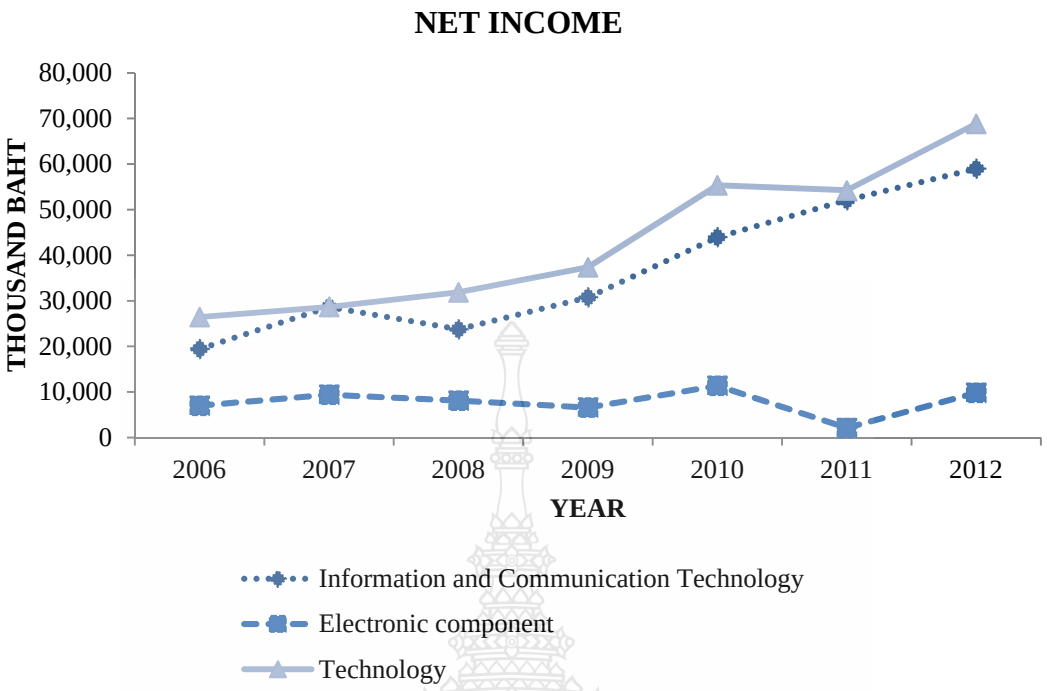

Figure 2.4 Technology Industry's net income from 2006 to 2012.
Source: SET accessed on 5th Sep. 2013

The different backgrounds between two industries were being interested to study about the factors relative to their performances which are the better predictability factors for each industry.

2.2 Firms' Performance

Accounting information has been used as tools for financial performance measurement in three functions which include financial management, motivation and control, and major objective of firm (Neely, 2007). Neely (2007) stated that measurement of main objective of the organization, profit, return on investment (ROI), EVA, and so on were important quantitative indicators to state the wealth and value of the organization. Therefore; financial reporting was established to present the essential

information for evaluating business objective in three main areas including cash flows, profit, and net assets values.

Business organizations were established for the major objective; “profit,” while shareholders and investors emphasized on earnings to access future performance and returnable (Healy & Wahlen, 1999). Therefore, accounting earnings was wildly used in valuation of stock in security trading, in perception of managerial performance and also in appraisal credit contract, in particular cash flows which has been considered to value the firm performance and sustainability (Barth et al., 2001).

2.2.1 Financial Statements

Thai listed companies present firms’ financial performance under SET regulations meaning that they have prepared financial statement form 56-1 and annual report for public. Financial reports have been formulated following Thai Accounting Standard (TAS); however, TASs have been announced by Federal of Accounting Professions under the Royal Patronage of Majesty the King (FAP). Due to a consequence of crisis on 1997 and under agreement with IMF, TASs have been then adopted from International Financial Reporting Standard (IFRS). International Accounting Standard Board (IASB) has authorized to set standards and guidance for preparation and presentation of financial statements. The purposes of financial reporting were to disclose information about financial position, performance and changes in financial position of organization to serve needs of general users (IASB, 2008). Financial reports consisted of four financial statements including statement of financial position, statement of comprehensive income, statement of change in equity, and statement of cash flows (IASB, 2010). Although financial reporting had been

prepared for all users to make decisions in economic circumstances, the limitation of accounting statements were that they have been prepared from past events and did not present nonfinancial information (IASB, 2008). However, accounting information could be useful for business entity, investor, and creditor to evaluate the potential of business organization in the future.

2.2.2 Earnings

IASB (2008) announced IAS1 presentation of financial reporting mentioning profit as a tool for measuring performance, or essential for other measures such as return on investment (ROI) and earnings per share. Profit or earnings was calculated from income and expense presented in Income Statement while the meaning of income and expense were;

> *"…income* is increases in economic benefits *during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than those relating to contributions from equity participants. And expenses are decreases in economic benefits during the accounting period in the form of outflows or depletions of assets or incurrences of liabilities that result in decreases in equity, other than those relating to distributions to equity participants… " (IASB, 2008).*

Since 2008, instead of IAS1 revised version 2007, an organization should prepare and present income and expense in statement of comprehensive income or present into two statements: income statement and statement of comprehensive income, which displayed other comprehensive income. In addition, other comprehensive income consisted of revaluation values, gains and losses on employee benefits, gains and losses on foreign currency translation, gains and losses on financial instrument remeasuring, and gains and losses on hedging. Although the components of other comprehensive income met the definition of income and expense, those events shall display as the adjustment of capital maintenance. Due to Capital Maintenance concept,

business entity would maintain its capital if it had ending net assets values above beginning net assets values is profit, IASB and FASB the convergence project regulated business unit to display comprehensive income.

As mentioned above, earnings was provided from past events although it was a basic measurement and reflect share price whereas the future values were more dependent on expected future performance (Epstein, 2004). Some researches indicated that earnings was a better indicator to predict future performance (earnings) than cash flows (Greenberg et al., 1986, Daraghma, 2013), and some studies stated that earnings had better predictability for future cash flows than cash flows (Greenberg et al., 1986; Murdoch & Krause, 1990; Arnold et al., 1991; Dechow, 1994; Dechow et al, 1998; Kim & Kross, 2005; Jordan et al., 2007; Moeinaddin et al., 2012; Daraghma, 2013). Kanagaretnam, Mathieu, and Shehata (2009) studied the predictability by comparing between earnings (net income) and comprehensive income, and the results showed that comprehensive income was a better predictor of future cash flows while net income had more predictability for future earnings than comprehensive income. On the other hand, Dhaliwal, Subramyam, and Trezevant (1999) stated that there was no evidence to conclude neither net income nor comprehensive income had better predictability. In conclusion, investors and other users were interested in future performance of organizations, or focused on going concern of entity; indeed, future performance is in attention of users.

2.2.3 Cash Flows

Cash flows had been used for evaluation of cash and cash equivalent generate ability. IAS7 (IASB, 2010) stated that cash flows was a tool for assessing and comparing of operating performance of entities due to the elimination effect of different accounting policy, and cash flows was also used to assess profitability and future cash flows. Statement of cash flows was classified into three groups of cash flows. First, operating cash flows included cash inflows and outflows from principal activities such as cash receipts from customer, sales of merchandises, and cash payments to supplier. Second, investing activities referred to cash payments for resources which were essential to generate income and cash flows. These consisted of cash receipts and payments arising from property, plant and equipment, and other long-term assets. Finally, financing activities occurred from shareholders and debtors, and this part included cash receipts and payments from issuing shares or equity instrument and other short- and long-term obligations.

Operating Cash Flows (CFO) was used for predicting performance. Some researches showed that CFO had relationship with firms' performance, and these studies focused on CFO versus earnings (Greenberg et al., 1986; Bowen et al., 1986; Finger, 1994; Murdoch & Krause, 1990; Arnold et al., 1991; Dechow, 1994; Dechow et al., 1998; Barth et al., 2001; Al-Attar & Hussain, 2004; Seng, 2006; Jordan et al., 2007; Farshadfar et al., 2008; Arthur et al., 2010; Telmoudi et al., 2010; Moeinaddin et al., 2012; Daraghma, 2013; Takhtaei & Karimi, 2013).

Bowen, Burgstahler, and Daley (1986), Finger (1994), Barth, Cram, and Nelson (2001), Al-Attar and Hussain (2004), Seng (2006), Farshadfar, Ng, and Brimble

(2008), Telmoudi, Noubbigh, and Ziadi (2010), and Takhtaei and Karimi (2013) found that CFO had more predictive ability for future cash flows than current earnings. Meanwhile, Arthur, Cheng, and Czernkowski (2010) stated that CFO had better predictability for future earnings than current earnings. However, Finger (1994) found that both CFO and earnings as mixed support to predict future performance, and CFO was better for future cash flows prediction in short-term while mixed cash flows and earnings were better in long-term prediction.

Free Cash flows has been considered for firms' performance evaluation and future valued of organization prediction. Even through free cash flows did not require disclosing of financial statement, some American firms voluntarily disclosed free cash flows information. Adhirikari and Duru (2006) and Nunez (2013) investigated voluntary disclosures of free cash flows, and they found that calculation of free cash flows was divided into two major categories including operating cash flows based methods and income based methods. According to Adhikari and Duru (2006), as shown in Table 2.8, organizations used operating cash flows based methods at fifty five point six percent while income based methods was applied at fourteen point two percent, and the rest was not classified into neither categories due inadequate information. They also found that the biggest group of firms' respondents defined free cash flows in capital maintenance perspective calculated from CFO minus capital expenditure. Therefore, in this research, free cash flows was defined as free cash after investing in capital expenditure to maintain business activities (Tole, McCord & Pugh, 1992; Hackel & Livrat, 1996; Bilicic & Connor, 2004; Nunez, 2013). Even though investors were interested in free cash flow, there were a few researches about future performance predictability. The

work of McLaughlin, Safieddinge, and Vasudevan (1996) showed that free cash flows was associated with profitability, but Nunez (2013) claimed that predictability was not different among free cash flows, CFO, and earnings. This was one of the reasons of this research to be conducted to investigate the predictability of free cash flows.

Table 2.8 Methods in defining free cash flows

	Frequency	Percent of CFO Based Method Sample	Percent of Total Sample
CFO Based Method			
Capital Maintenance Perspective			
CFO-CAPEX	283	51.6	28.7
CFO-CAPEX+/- change in NWC	10	1.8	1.0
CFO-Nonrecurring charges-MCAPEX	41	7.5	4.2
CFO-Investing activity	64	11.7	6.5
Total	**398**	**72.6**	**40.4**
All Inclusive Perspective			
CFO-CAPEX-Debt payment	21	3.8	2.1
CFO-CAPEX-Dividend	117	21.4	11.9
CFO-Investing activity-Dividend	12	2.2	1.2
Total	**150**	**27.4**	**15.2**
Sub-Grand Total-CFO Based Methods	**548**	**100.0**	**55.6**
Income-Based Methods			
Derived from EBITDA	112		11.4
Derived from Net Income	28		2.8
Sub Total-Income-Based Methods	**140**		**14.2**
Others	297		30.2
Grand Total	**985**		**100.0**

Note: CFO: Operating Cash flows
CAPEX: Capital Expenditure
NWC: Net Working Capital
MCAPEX: Maintenance Capital Expenditure; and
EBITDA: Earnings before interest, taxes, depreciation, and amortization.

Source: Adhikari & Duru (2006).

2.3 Financial and Non-Financial Factors

Financial measurements have been used to evaluate business performance. In 1980s, non-financial factors were highlighted to fulfill business management due to insufficient financial measurement (Johnson, 1983; Kaplan, 1984; Johnson & Kaplan, 1987). The authors named earlier complained financial and accounting information failure for reflection of competition. Traditionally, cost based measurement, which provided historical value, was little indication of future performance (Bruns, 1998). Therefore, various researchers constructed measurement tools such as the balance scorecard (Kaplan & Norton, 1992) and the performance prism (Kennerley & Neely, 2000), to balance financial and non-financial measures in complex business firms. Hence, this research tended to study both financial and non-financial factors which associated with prediction of future firm performance. Factors focused in this study were financial consisting of firm size and firm growth and non-financial composed of market risk and auditor quality.

2.3.1 Agency theory

Jensen and Meckling (1976) mentioned on agency cost that it was a conflict between shareholders as principle and manager as agent. Agency theory stated that problems should arise in organization which meant that the principle could not verify the managerial tasks as if the actually doing and the conflict of beneficial. For example, owners would like to maximize profit for higher return while managerial executives need to perceive high compensation, so they should direct firm in order to show high performance to meet the goal. While the actual situation was not effective as they mentioned, this situation led to earnings management for smoothing earnings. In

addition, based on free cash flows, firm with low-growth opportunities was more likely to invest free cash flows in inappropriate project. To reduce agency cost, audit function has been examined firm operations linked to financial reporting, and if there were some signals, auditors could investigate and auditor report could be qualified (Krishnan & Krishnan, 1997).

2.3.1.1 Auditor Quality

Agency Theory had been one of problems between principals and managers due to conflict of goals of owners and agents, and it was difficult to verify the agent's doing. Eisenhardt (1989) and Guan, He, and Yang (2006) stated that financial statement should be decorated by management in discretionary expenses. However, auditors worked and remarked on financial reporting before displaying to investors and other users. 'Big N' audit firms had been investigated for better quality on planning and auditing, and users more relied on their comments (Doyle et al., 2007; Rusmin, 2010). Other evidences suggested that there were quality differences among audit firms (DeAngelo, 1981; Simunic & Stein, 1987; Francis et al., 1999), and high quality auditors were more restrict to earning volatility. Due to high reputation, high quality auditors needed to avoid bad publicity associated with a client including public users. High quality auditors had been identified to Big N audit firms (DeAngelo, 1981; Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Chung, Firth, & Kim, 2003) which had a substantial market share of listed companies in Thailand and many other countries. To protect their reputation, BIG4 auditors would be more conservative and caution than non-Big 4 (Francis et al., 1999; St. Pierre & Anderson, 1984).

Chung, Firth, and Kim (2005) measured audit quality in two dimension: Big6 auditors and length of auditor tenure. Auditor change was affected earning quality since the same auditors should have more experiences than the new ones. On the other hand, the new auditor team would spend more time to study about characteristics of firms, so it was associated with lower audit quality (Doyle et al., 2007; Becker et al., 1998; Francis et al., 1999).

2.3.2 Market Risk

Neely (2007) stated that investment should be riskiness, only invest in government bonds might be risk free or low risk. Investors should concentrate on riskiness of investment represented by 'beta.' Security commission displays risk of each company in public to inform investors before making decision. Beta is commonly used in the Capital Asset Pricing Model (CAPM) and used as an instrument to appraise the values and future performance. Blitz, Huij, and Martens (2011) found that lower beta had correlated with future losses. Schwerdt and Wendland (2011) mentioned that a higher risk and thus higher rewards mean a higher beta, whereas a lower beta means less risk and thus lower expected returns.

Beta value less than zero meant that price of stock is opposite direction as comparing with market index while beta value more than zero but less than 1 meant that stock price moves the same direction as benchmark. As for beta value more than 1, it meant the movement of price was the same direction and more than market index. Beaver, Kettler, and Scholes (1970) stated that market risk had a relationship with accounting measurement, and firms with high market risk were more likely to have high earnings in short-term.

2.3.3 Firm Size

Contingency Theory stated that firm size may affect the management system and organization control (Epstein, 2004) and also firms' risk and information environment (Ohlson, 1980; Bamber, 1987). Therefore, firms' performance should be different in terms of either decreasing or increasing depending on size of entities since larger organizations should have better controlling system. Researchers used firm size as a control variable, and size of organization was measured by various measurements such as sales (Dey, 2008) and market value of equity (Barth et al., 1999; Charitou et al., 2001; Shivakumar, 2006; Da & Warachka, 2009).

2.3.4 Firm Growth

Previous studies found that firm growth proxy was related to firms' performance and future profitability. Barth, Beaver, and Hand (1999) and Charitou, Clubb, and Andreou (2001) found that the growth rate of firms should influence performance, and huge or little growth rate shall make different impacts. Fairfield, Whisenant, and Yohn (2003), Richardson, Sloan, Soliman, and Tuna (2005), Cooper, Gulen, and Schill (2008), and Cao (2011) found that total asset growth rate had implication for future profitability. Consequently, the finding showed that firm growth related to future financial performance in terms of earnings and cash flows.

2.4 Previous Studies

There were two approaches about prediction of future firm performance: cash flows and accrual earnings. Prior researchers studied the relationship about current performances such as earnings and operating cash flows with future performance both

earnings and cash flows. In Table 2.9, the research findings were not consistent. Some researchers stated that current earnings was a better predictor of future cash flows than current cash flows (Dechow et al., 1998; Kim & Kross, 2005). On the other hand, some findings showed that operating cash flows was more accurate predictor of future operating cash flows than earnings (Arnold et al., 1991). Some researches had been investigated predictability factors for future earnings, and the results were net income (Kanagaretnam et al., 2009), operating cash flows (Arthur et al., 2010). Previous prediction models consisted of different components, and the results were not consistent. Assumptions and environment of each research were different such as location and samples in UK, US, and Singapore. As for Thai listed companies, the question on what the suitable model to predict future firm performance is was considered.

Table 2.9 Previous researches on predictability of earnings and cash flows

Researchers	Data	Statistics	Dependent variables	Independent variables	Results
Greenberg, Johnson & Ramesh (1986)	157 industrial firms, annual report from COMPUSTAT during 1963-1982	OLS regression	Future earnings and Future CFO	Earnings, CFO	Earnings were better predictor than CFO
Bowen, Burstahler & Daley (1986)	324 companies, annual report from COMPUSTAT between 1971-1981	Chi-Square Correlation	Future cash flows	Earnings, CF	Cash flows was better predict ability than future cash flows than earnings
Murdoch & Krause (1990)	603 firms, annual report from COMPUSTAT data between 1966-1985	Chi-Square	Future CFO	Earnings (NI), CFO Size	Earnings were better predictor than CFO for predictions of CFO.

Table 2.9 Previous researches on predictability of earnings and cash flows. (Cont.)

Researchers	Data	Statistics	Dependent variables	Independent variables	Results
Arnold, Clubb, Manson & Wearing (1991)	171 companies, London Stock Exchange during 1965-1984	Regression	Future CFO	CFO, CFI, CFA, Earnings	Earnings were superior than CFO in future cash flows prediction
Rivera (1991)	155 US corporations, (96 domestic & 119 multinational)	ANOVA	Future Earnings	Earnings, systematic risk, type.	Type of firm affected to error of future earnings prediction
Finger (1994)	50 firms of 1988 Fortune 500, annual report from hand-gathered between 1935-1987 and COMPUSTAT data during 1968-1987	Time series model	Future CFO	Earnings, CFO	CFO was better short term predictor of future cash flows than earnings and mixed earnings and cash flows were more approximately in long term.
Dechow. (1994)	19,733 firm-year observations from 1960 to 1989, 27,308 firm-year observations during 1987-1989, and 5175 firm-four-year between 1964-1989 from COMPUSTAT	regression	Future cash flows	Earnings (accrual), CFO	Earnings were better predictor for future cash flows than CFO
McLaughlin, Safieddine & Vasudevan (1996)	1,296 firms from COMPUSTAT database during 1980-1991	Regression, Determinant.	Operating Performance	Free cash flows	Declining in profitability was greater for higher free cash flows firms.
Dechow, Kothari & Watts (1998)	1337 firms from COMPUSTAT data during 1963-1992	regression	Future CFO	Earnings, CFO, Sales	Earnings were better predictors of future cash flows than CFO

Table 2.9 Previous researches on predictability of earnings and cash flows. (Cont.)

Researchers	Data	Statistics	Dependent variables	Independent variables	Results
Dhaliwal, Subramanyam & Trezevant (1999)	11,348 firm-year observation from COMPUSTAT during 1994-1995	Regression	Future cash flows, Future Earnings	NI, CI	No evidence that CI was better predict Future cash flows, future earnings than NI.
Barth, Cram, & Nelson (2001)	10,164 firm-year observation of listed US Firm except finance industry, COMPUSTAT data during 1987-1996	regression	Future cash flows	Earning (operating income), CFO	CFO had better predictability than Earnings.
Al-Attar & Hussain (2004)	7,191 firm-year observations from All British firms listed on London Stock Exchange (LSE), from 1991 to 2000	OLS regression	Future cash flows	CFO, Earnings (accrual)	CFO had better predictability than Earnings.
Kim & Kross (2005)	1,266 firm-year observation from COMPUSTAT during 1973-2000 (except finance industry)	OLS regression	Future CFO	Earnings	Earnings had predictive ability for future cash flows
Seng (2006)	213 companies listed on New Zealand Stock Exchange between 1989-1992	Chi-square, Correlation	Future cash flows	CFO, CFI, CFA, Earnings	CFO was better predictor than earnings for 1 and 2 year ahead future cash flows
Jordan, Waldron & Clark.(2007)	100 companies from The Fortune 1000 for the year 2002 and 2003	OLS regression	Share price as a proxy of Future cash flows	Earnings, CFO	Earnings predicted better than CFO.

Table 2.9 Previous researches on predictability of earnings and cash flows. (Cont.)

Researchers	Data	Statistics	Dependent variables	Independent variables	Results
Farshadfar, Ng & Brimble (2008)	323 listed companies on The Australian Stock Exchange from 1992 to 2004	OLS regression	Future cash flows	Earnings, CFO, Working Capital from operation.	CFO had better predictability to predict future cash flows than earnings.
Lorek & Willinger (2008)	1,174 firms from annual COMPUSTAT data, during 1990-2004	Regression (cross-sectional), Time series model	Future CFO	Earnings, CFO	CFO had better predictive ability than earning
Kanagaretnam, Mathieu & Shehata (2009)	75 listed Canadian firms on The Toronto Stock Exchange during 1998-2003	Regression	Future cash flows, Future Net Income	Earnings, Comprehensive Income	Net income was better predictor of future net income than CI, while CI was better predictor of future cash flows than NI
Arthur, Cheng & Czernkowski (2010)	3,672 firm-year observations, Australian firms during 1992-2005	Regression	Future earnings	Earnings, CFO, Net cash flows	CFO had better predictability for future earning than net CF and earnings
Telmoudi, Noubbigh & Ziadi.(2010)	52 Tunisia Commercial companies from Financial Market Council (FMC)	Regression (random & fixed effects model)	Future CFO	Earnings, CFO.	CFO is better predictability for future cash flows than earnings

Table 2.9 Previous researches on predictability of earnings and cash flows. (Cont.)

Researchers	Data	Statistics	Dependent variables	Independent variables	Results
Jones & Smith (2011)	236 companies in COMPUSTAT database for period 1976-2005	Derivative measurement	Future cash flows, Future Earnings	Other Comprehensive Income	OCI gain & loss had predictive value for future earnings in short term, and for future cash flows for long term
Moeinaddin, Ardakani & Akhoondzadeh. (2012)	81 listed companies on Tehran Stock Exchange between 2006-2010	regression	Future CFO	Earnings, CFO, Working Capital	Earning had remarkable ability to predict future cash flows, while CFO had no relationship with future CFO.
Daraghma (2013)	16 listed Palestinian companies (10 industrial & 6 service firms) during 2004-2011	OLS regression, Time series	Future earnings	Earnings, CFO	Earnings had predictability for future earnings, while CFO had irrelevance
Nunez (2013)	86 Electric utility firms from COMPUSTAT during 2001-2010	OLS regression	Future performance: annual returns and market value of equity	Free Cash Flow, CFO, NI	No relative difference between the ability of FCF, CFO and NI.
Takhtaei & Karimi (2013)	94 listed companies on Tehran Stock Exchange during 2005-2009	OLS regression	Future CFO	CFO, Earnings.	CFO had more predictability than earnings.

Regarding consequence of reviewing theory and previous researches to formulate prediction model for future firm performance, the expected predicted signs

were presented in Table 2.10. The positive sign, (+), mean changes in variable were in the same direction while negative sign, (-), implied changes in variable affected independent variable in the opposite direction.

Table 2.10 Predicting firm performance factors, proxy and expected sign

Factors	Predicted sign	Researcher
Earnings	+	Arnold et al. (1991), Dechow et al. (1998), Al-Attar & Hussain (2004), Kim & Kross (2005), Kanagaretnam et al. (2009), Arthur et al. (2010)
Comprehensive income	+	Kanagaretnam et al. (2009)
Operating cash flows	+	Arnold et al. (1991), Dechow et al. (1997), Al-Attar & Hussain (2004)
Free cash flows	+	Nunez (2013)
Firm Size	+	Barth et al. (1999), Charitou et al. (2001), Shivakumar (2006), Kim & Kross (2005), Dey (2008), Da & Warachka (2009), Lorek & Willinger (2009)
Firm Growth	+	Barth et al. (1999), Charitou et al. (2001), Fairfield et.al. (2003), Richardson et.al. (2005), Cooper et.al. (2008), Cao (2011)
BIG4	-	Doyle et.al. (2007), Rusmin (2010),
Auditor Change	-	Becker et.al. (1998), Francis et al. (1999), Doyle et al. (2007)
Market Risk (beta)	+	Neely (2007), Blitz et al. (2011), Schwerdt & Wendland (2011)

2.5 Conclusion

In summary, the needs of investors and other users had been investigated in previous researches, and financial information was taken into consideration to make economics decision making. According to the limitation of financial reporting about past event disclosure and going concern assumption, stakeholder may need to know the future performance of entities to insure their investment or other business transactions. Due to consequence of literature review, there were many factors that should involve with performance of business organization, and this research therefore investigated the potential factors which have the predictability for formulating future performance prediction models.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter presented the research methodology applied for collecting and analyzing the data. This research aimed to investigate future firm performance predictability of earnings and cash flows. Both earnings and cash flows were financial performance measurements but were on different basis; earnings was based on accrual basis while cash flows was based on cash basis. This study used future financial performances including future earnings and future cash flows as independent variables and past financial performances as dependent variables. Previous researches focused on the two factors, but the results were not consistent. Thus, this study investigated the predictability of earnings and cash flows for future firm performance of Thai listed companies in Agro & Food Industry and Technology Industry.

3.1 Theoretical Framework

This study was conducted based on a cross-sectional analysis to investigate the factors relating to predict future firm financial performance in two considerations: future earnings (Healy & Wahlen, 1999) and future operating cash flows (Barth et al., 2001). The four elements of independent variables were firm financial performance indicators in previous researches. These included earnings (Greenberg et al., 1986; Murdoch & Krause, 1990; Arnold et al., 1991; Rivera, 1991; Dechow, 1994; Dechow et al., 1998; Kim & Kross, 2005; Jordan et al., 2007; Moeinaddin et al., 2012; Daraghma, 2013), comprehensive income (Dhaliwal et al., 1999; Kanagaretnam et al.,

2009), operating cash flows (Greenberg et al., 1986; Bowen et al., 1987; Finger, 1994; Murdoch & Krause, 1990; Arnold et.al., 1991; Dechow, 1994; Dechow et al., 1998; Barth et al., 2001; Al-Attar & Hussain, 2004; Seng, 2006; Jordan et al., 2007; Farshadfar et al., 2008; Arthur et al., 2010; Telmoudi et al., 2010; Moeinaddin et al., 2012; Daraghma, 2013; Takhtaei & Karimi, 2013) and free cash flows (McLaughlin et al., 1996; Nunez, 2013). However, the control variables from previous studies mentioned on factors affecting firms' performance were size (Barth et al., 1999; Charitou et al., 2001; Shivakumar, 2006; Da & Warachka, 2009), growth (Fairfield et al., 2003; Richardson et al., 2005; Cooper et al., 2008; Cao, 2011), market risk (Beaver et al., 1970; Blitz et al., 2011; Schwerdt & Wendland, 2011), and auditor quality (Doyle et al., 2007; Becker et al., 1998; Francis et al., 1999), and these proxies related to the business performance. This theoretical framework was shown in Figure 3.1.

3.2 Research Design

This research aimed to investigate the predictability of accounting information to forecast future firm performance which was in concentration of investors, other users and management of organizations (Barton, Hansen, & Pownall, 2010). Results of the study could support the prediction models to forecast future firm performance by using financial information. As mentioned in chapter 1, three hypotheses were formulated to test the ability of prediction of each variable in order to answer research questions.

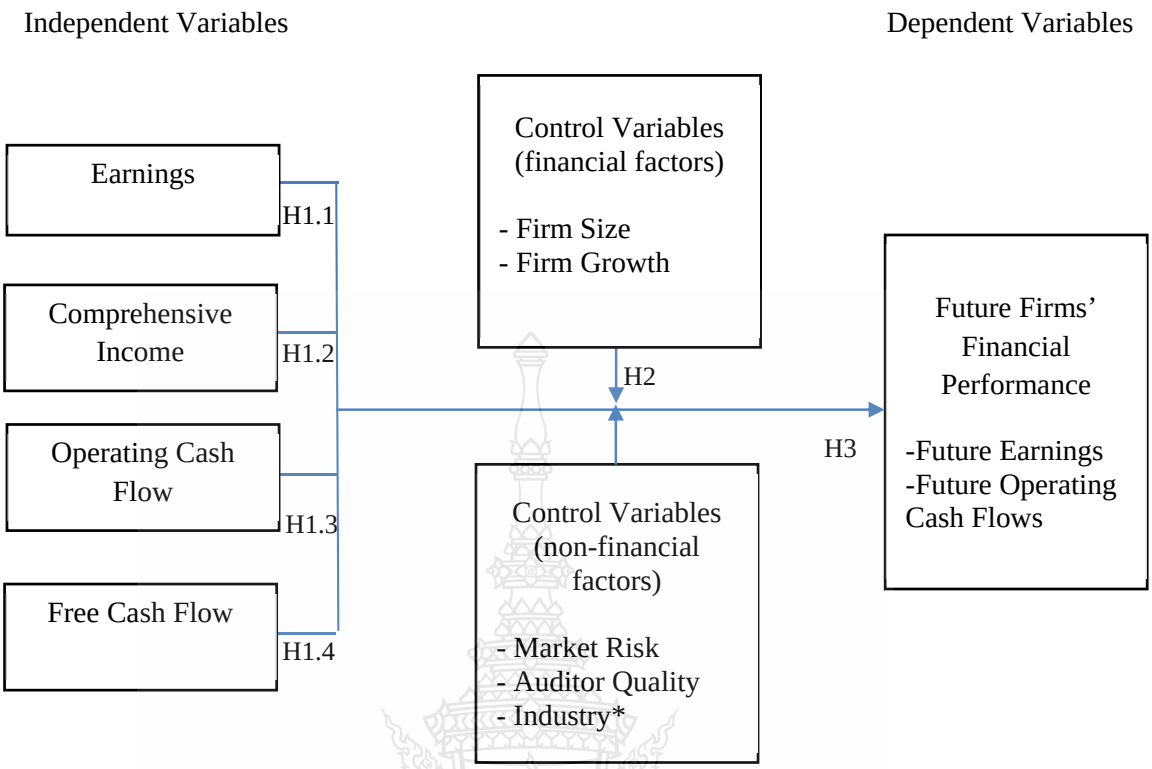

Figure 3.1 Theoretical Framework
Note: *Industry used for pooled industries to test the differential of AGRO and TECH

Accounting data, including cash flows, earnings, and comprehensive income were recorded and disclosed in financial reporting, under regulation of involved organizations. Secondary data from financial statement were usually used in accounting prior researches (Adelegan, 2003; Barth et al., 1999; Barth et al., 2001; Barth et al., 2005).

3.2.1 Population

This study focused on Thai listed companies due to the public disclosure involving with wide users. The unit of the study was firm-year. SET has classified industry into eight groups: Agro & Food, Consumer Product, Financials, Industrials, Property & Construction, Resources, Services, and Technology. Agro & Food Industry (AGRO) and Technology Industry (TECH) were selected for investigation in this

research since it had total return index in the highest rank in 2010 and SET index by industry as shown in Table 2.2. AGRO and TECH were two of three industries that price index was positive while the others were negative. According to the difference of the two industries as mentioned in chapter 2, the results shall be compared to investigate the predictability of accounting information.

Table 3.1 Thai listed companies under Agro & Food Industry

Sector	Company	Symbol
Agribusiness	ASIAN SEAFOODS COLDSTORAGE PUBLIC COMPANY LIMITED	ASIAN
	KIANG HUAT SEA GULL TRADING FROZEN FOOD PUBLIC CO., LTD.	CHOTI
	CHIANGMAI FROZEN FOODS PUBLIC COMPANY LIMITED	CM
	CHUMPORN PALM OIL INDUSTRY PUBLIC COMPANY LIMITED	CPI
	ETERNAL ENERGY PUBLIC COMPANY LIMITED	EE
	GFPT PUBLIC COMPANY LIMITED	GFPT
	LEE FEED MILL PUBLIC COMPANY LIMITED	LEE
	PAKFOOD PUBLIC COMPANY LIMITED	PPC
	PATUM RICE MILL AND GRANARY PUBLIC COMPANY LIMTED	PRG
	SRI TRANG AGRO-INDUSTRY PUBLIC COMPANY LIMITED	STA
	THAILUXE ENTERPRISES PUBLIC COMPANY LIMITED	TLUXE
	TRANG SEAFOOD PRODUCTS PUBLIC COMPANY LIMITED	TRS
	THAI RUBBER LATEX CORPORATION (THAILAND) PUBLIC CO.,LTD.	TRUBB
	UNITED PALM OIL INDUSTRY PUBLIC COMPANY LIMITED	UPOIC
	UNIVANICH PALM OIL PUBLIC COMPANY LIMITED	UVAN
Food and Beverage	AGRIPURE HOLDINGS PUBLIC COMPANY LIMITED	APURE
	SEAFRESH INDUSTRY PUBLIC COMPANY LIMITED	CFRESH
	CHAROEN POKPHAND FOODS PUBLIC COMPANY LIMITED	CPF
	FOOD AND DRINKS PUBLIC COMPANY LIMITED	F&D
	HAAD THIP PUBLIC COMPANY LIMITED	HTC
	KHONBURI SUGAR PUBLIC COMPANY LIMITED	KBS
	KHON KAEN SUGAR INDUSTRY PUBLIC COMPANY LIMITED	KSL
	LAM SOON (THAILAND) PUBLIC COMPANY LIMITED	LST
	MALEE SAMPRAN PUBLIC COMPANY LIMITED	MALEE
	MINOR INTERNATIONAL PUBLIC COMPANY LIMITED	MINT

Table 3.1 Thai listed companies under Agro & Food Industry (Cont.)

Sector	Company	Symbol
	OISHI GROUP PUBLIC COMPANY LIMITED	OISHI
	PRESIDENT BAKERY PUBLIC COMPANY LIMITED	PB
	PREMIER MARKETING PUBLIC COMPANY LIMITED	PM
	PRESIDENT RICE PRODUCTS PUBLIC COMPANY LIMITED	PR
	S & P SYNDICATE PUBLIC COMPANY LIMITED	S&P
	THAITHEPAROS PUBLIC COMPANY LIMITED	SAUCE
	SIAM FOOD PRODUCTS PUBLIC COMPANY LIMITED	SFP
	S. KHONKAEN FOODS PUBLIC COMPANY LIMITED	SORKON
	SERM SUK PUBLIC COMPANY LIMITED	SSC
	SURAPON FOODS PUBLIC COMPANY LIMITED	SSF
	TROPICAL CANNING (THAILAND) PUBLIC COMPANY LIMITED	TC
	THAI PRESIDENT FOODS PUBLIC COMPANY LIMITED	TF
	TIPCO FOODS PUBLIC COMPANY LIMITED	TIPCO
	THAI UNION FROZEN PRODUCTS PUBLIC COMPANY LIMITED	TUF
	THAI VEGETABLE OIL PUBLIC COMPANY LIMITED	TVO
	THAI WAH FOOD PRODUCTS PUBLIC COMPANY LIMITED	TWFP

Source: SET (http://www.set.or.th/en/company/companylist.html) accessed on 18th Sep. 2011

Table 3.2 Thai listed companies under Technology Industry

Sector	Company	Symbol
Electronic Components	CAL-COMP ELECTRONICS (THAILAND) PUBLIC CO., LTD.	CCET
	DELTA ELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED	DELTA
	DRACO PCB PUBLIC COMPANY LIMITED	DRACO
	ELECTRONICS INDUSTRY PUBLIC COMPANY LIMITED	EIC
	HANA MICROELECTRONICS PUBLIC COMPANY LIMITED	HANA
	KCE ELECTRONICS PUBLIC COMPANY LIMITED	KCE
	MURAMOTO ELECTRON (THAILAND) PUBLIC COMPANY LIMITED	METCO
	STARS MICROELECTRONICS (THAILAND) PUBLIC COMPANY LIMITED	SMT
	SINGLE POINT PARTS (THAILAND) PUBLIC COMPANY LIMITED	SPPT
	SVI PUBLIC COMPANY LIMITED	SVI
	TEAM PRECISION PUBLIC COMPANY LIMITED	TEAM
Information & Communication Technology	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED	ADVANC
	ADVANCED INFORMATION TECHNOLOGY PUBLIC CO.,LTD.	AIT
	BLISS-TEL PUBLIC COMPANY LIMITED	BLISS
	CS LOXINFO PUBLIC COMPANY LIMITED	CSL

Table 3.2 Thai listed companies under Technology Industry (Cont.)

Sector	Company	Symbol
	TOTAL ACCESS COMMUNICATION PUBLIC COMPANY LIMITED	DTAC
	FORTH CORPORATION PUBLIC COMPANY LIMITED	FORTH
	THE INTERNATIONAL ENGINEERING PUBLIC COMPANY LIMITED	IEC
	INTERNET THAILAND PUBLIC COMPANY LIMITED	INET
	SHIN CORPORATION PUBLIC COMPANY LIMITED	INTUCH
	JASMINE INTERNATIONAL PUBLIC COMPANY LIMITED	JAS
	JAY MART PUBLIC COMPANY LIMITED	JMART
	JASMINE TELECOM SYSTEMS PUBLIC COMPANY LIMITED	JTS
	MFEC PUBLIC COMPANY LIMITED	MFEC
	M-LINK ASIA CORPORATION PUBLIC COMPANY LIMITED	MLINK
	METRO SYSTEMS CORPORATION PUBLIC COMPANY LIMITED	MSC
	PREMIER TECHNOLOGY PUBLIC COMPANY LIMITED	PT
	SAMART CORPORATION PUBLIC COMPANY LIMITED	SAMART
	SAMART TELCOMS PUBLIC COMPANY LIMITED	SAMTEL
	SAMART I-MOBILE PUBLIC COMPANY LIMITED	SIM
	SIS DISTRIBUTION (THAILAND) PUBLIC COMPANY LIMITED	SIS
	SVOA PUBLIC COMPANY LIMITED	SVOA
	SYMPHONY COMMUNICATION PUBLIC COMPANY LIMITED	SYMC
	SYNNEX (THAILAND) PUBLIC COMPANY LIMITED	SYNEX
	THAICOM PUBLIC COMPANY LIMITED	THCOM
	TT&T PUBLIC COMPANY LIMITED	TT&T
	TWZ CORPORATION PUBLIC COMPANY LIMITED	TWZ
	TRUE CORPORATION PUBLIC COMPANY LIMITED	TRUE

Source: SET (http://www.set.or.th/en/company/companylist.html) accessed on 18th Sep. 2011

Agro & Food Industry consisted of forty one companies such as fifteen companies in Agribusiness sector plus twenty six companies in Food & Beverage sector (Table 3.1). Technology Industry comprised thirty eight companies divided into eleven companies in Electronic Components and twenty seven firms in Information & Communication Technology (Table 3.2). According to the dissimilar business, it could confirm the predictability of relevant factors of this study. Technology Industry related to an innovation and high development in technical and equipment while Agro & Food Industry did not rapidly change in manufacturing process.

3.2.2 Instrumentation

Regarding the purposes of this study, two industries including Agro & Food Industry and Technology Industry were selected to investigate the abilities of accounting information to predict future firm performance. According to the regulation of SET, public companies' accounting information (financial statements) has to be disclosed to public.

This study adjusted the instruments from previous researches. Secondary data from financial statements and SET trading information were collected. First of all, earnings was adopted from the research of Barth et al. (2001), and they used operating earnings meaning net income less extraordinary items and interest while this study implied to earnings before interest and tax due to change in accounting standard for presentation of financial statement about extraordinary items. Second, comprehensive income (CI) was recently used in Thailand but in United States of America, where comprehensive income was presented in financial statement. This study followed the researches of Kanagaretnam et al. (2009) and IFRS (2010) that comprehensive income was collected and calculated from income statement and statement of changes in equity. Third, operating cash flows was meant net cash inflow and outflow from principal activities (IFRS, 2010) collected from statement of cash flows. Finally, free cash flows adopted from the researches of Tole et al. (1992), Hackel et al. (1996), and Nunez (2013) was collected from statement of cash flows, calculated by operating cash flows less capital expenditure.

According to literature reviews, financial and non-financial factors associated with firms' performance were used as follows. Market risk was defined as beta (Beaver

et al., 1970) which was calculated by SET and displayed by SETSMART. Firm size was measured from market value of equity, adapted from the researches of Barth et al. (1999), Charitou et al. (2001), and Shivakumar (2006). Growth rate of firm was found to be related to firms' performance and future profitability. This research also followed the researches of Fairfield et al. (2003), Richardson et al. (2005), Cooper et al. (2008), and Cao (2011), and the results showed that total asset growth rate was relevant to future profitability. Considering audit quality, it was associated with firms' performance due to a tool of principle against agent, and this study used instrument adapted from the research of Chung et al. (2005). Audit quality meant big audit firms and auditor change, and it was collected from auditor report disclosed on SET website.

3.2.3 Variables in the Study

This study examined predictabilities of accounting information for forecasting future firm performance. Future firm performance implied only financial performance based on two dependent variables: future earnings and future operating cash flows. In this research, earnings before interest and tax stood for earnings.

The independent variables comprised earnings, comprehensive income, operating cash flows, and free cash flows. As mentioned above, earnings before interest and tax referred to earnings. Even though earnings and operating cash flows were the same name, dependent variables were future performances while independent variables were the previous performances that had already happened. On the other hand, control variables meant the variables that were relevant to the degree of changing of performances. According to literature review, this study focused on financial and non-

financial factors such as, firm size, firm growth, market risk, and auditor quality. List of variables, symbol, measurement, and expected results were shown in Table 3.3.

Table 3.3 List of variables, symbol, measurement and expected results.

Variables	Symbol	Measurements	Expected results
Independent Variables			
Earnings	$EARN_t$	Earnings before interest and tax in year t	+
Comprehensive income	CI_t	Comprehensive Income (Net Income plus other comprehensive gain or loss) in year t	+
Operating cash flows	CFO_t	Net cash inflow and outflow from principal activities in year t	+
Free cash flows	FCF_t	Operating cash flows minus capital expenditure in year t	+
Firm size	$SIZE_t$	Natural logarithm of Market value of equity at the ending of the fiscal year t	+
Firm growth	$GROWTH_t$	Change in total assets computed from total assets in year t minus total assets in year t-n divide by total assets in year t	+
Auditor quality	$BIG4_t$	Dummy variable of audit firm in year t, code 1 if audit by Big 4, 0 otherwise	-
	$AUDITC_t$	Changed audit firm compare between year t and year t-n, code 1 if change audit firm, 0 otherwise	-
Market risk	$RISK_t$	Market beta value at the ending fiscal year t	+

3.2.4 Data Collection

The secondary data were collected from SET from 2005 to 2010 on yearly basis. The accounting data consisting of earnings, comprehensive income, operating cash flows, free cash flows, firm growth, and auditor quality were collected from

financial reports displayed on SET website. Financial reports included statement of financial position, comprehensive income statement, statement of cash flows, and auditor report. Meanwhile, market risk and market value of equity were collected from SETSMART (SET Market Analysis and Reporting Tool), which were prepared from the Stock Exchange of Thailand's trading information.

As mentioned above, the population in this study was Thai listed companies in two industries. The first one was Agro & Food Industry which was divided into two sectors comprising forty one companies (Table 3.1). The other one was Technology Industry, which consisted of two sectors and thirty eight related companies (Table 3.2).

3.2.5 Data Processing and Analysis

Data processing started with screening the completion of data due to some data missing and some firm listed on SET after 2005. This research studied the predictability of accounting information for one, two, and three-year-ahead. For one-year-ahead prediction, data collected were from 2005 to 2010. There were 190 firm-years for Agro & Food Industry and 155 firm-years for Technology Industry as shown in Table 3.4. Nonetheless, some data were not available since the companies were listed after 2005, and there were some missing data, especially market risk or beta.

Regarding two-year-ahead prediction, since one more year was required, so data collected were from 2004 to 2010. Table 3.5 showed the number of firm-years observations composed of 188 firm-years for Agro & Food Industry and 148 firm-years for Technology Industry.

Table 3.4 Number of observations for one-year-ahead firms' performance prediction

	Agro & Food Industry	Technology Industry
Total listed companies as of 18th Sep. 2011	41	39
Missing data, Listed after 2005 -company	3	6
Outlier	-	1
Total observations - companies	38	32
Observations - Firm-years (companies x 5 yrs.)	190	160
Missing data (especially "beta" , - Firm-years	-	5
Total observations- Firm-years	190	155

Table 3.5 Number of observations for two-year-ahead firms' performance prediction

	Agro & Food Industry	Technology Industry
Observations - Firm-years (companies x 5 yrs.)	190	160
Missing data, -Firm-years	2	12
Total observations- Firm-years	188	148

Finally, due to the three-year-ahead prediction, data collected were from 2003 to 2010 to meet 5 firm-years per company. There were 180 firm-years for Agro & Food Industry and 110 firm-years for Technology Industry as shown in Table 3.6. The reduction of observations of Technology Industry caused from some companies were listed on SET since 2005 and later. Even though accounting information could be collected from other sources, beta was not displayed in that year.

Table 3.6 Number of observations for three-year-ahead firms' performance prediction

	Agro & Food Industry	Technology Industry
Observations - Firm-years (companies x 5 yrs.)	190	160
Missing data, -Firm-years	10	50
Total observations- Firm-years	180	110

Appropriated statistics such as descriptive and inference statistics were considered to apply in this research as follows:

- Descriptive statistic was used to explain the basic features of data, comprising frequency, percentage, mean, and standard deviation.
- Simple regression statistic was used to analyze the predictability of each financial information factor consisting of past EARN, CI, CFO, and FCF.
- Multiple regression analysis was used to analyze the predictive ability for future firm performance of past financial information and relevant financial and non-financial factors which were expected to strengthen the predictability.
- Pearson correlation was used to examine the relationship among variables before analyzing by regression method.

The multiple regression technique had been used in many previous prediction researches; therefore, multiple regression analysis was applied to analyze the variables including operating cash flows, earnings, comprehensive income, and financial and non-financial factors. The analysis of data collected was based on annual financial reporting disclosed by the Stock Exchange of Thailand from 2005 to 2010 for one-year-ahead firms' performance prediction. Due to consequence of two-year-ahead firms' performance prediction, two lags of data were required, thus data from 2003 to 2010 were used for analyzing. With the same reason, three-year-ahead firms' performance prediction required three lags of data, so data were collected from 2002 to 2010.

The work on predictability for future cash flows or earnings was formulated by using various statistic tools. According to literature review, prediction models were estimated by regression analysis (Greenberg et al., 1986; Arnold et al., 1991; Dechow, 1994; Dechow et al., 1998; Barth et al., 2001; Al-Attar & Hussain, 2004; Kim & Kross, 2005; Kanagaretnam et al., 2009; Arthur et al., 2010; Lorek & Willinger, 2010; Nunez, 2013). On the other hand, Finger (1994), Lorek and Willinger (1996), Lorek and Willinger (2008), and Lolek and Willinger (2010) employed time-series estimation procedures**.** Meanwhile, Telmoudi, Noubbigh, and Ziadi (2010) used econometrics method analysis random and fixed effects model. In this research, regression analysis was used to investigate the predictability of earnings and cash flows, and therefore the conditions of regression analysis were presented as follows (Kutner et al., 2005; Vanichbuncha, 2010; Johnson & Bhattacharyya, 2011).

1. Dependent and independent variables were interval or ratio, and if there were nominal or ordinal, they would be transformed to dummy.
2. Dependent and independent variables were collected from normal distribution population.
3. e was normal distribution, and mean of e equaled to zero.
4. V(e) ($=\sigma^2$) is constant, if not, there was the Heteroscedastic problem.
5. e_t and e_{t-n} were independent. Due to detection of autocorrelation problem, Durbin-Watson analysis was used to examine. If Durbin-Watson value was between 1.5 and 2.5, it was practical for independent implication.
6. Multicollinearity problem could be occurred from independent variables which were highly correlated. VIF (variance inflation factor) was used to

examine multicollinearity. If VIF value was more than 10, thus there were multicollinearity between independent variables rather than dependent variables.

According to the conditions of multiple regression analysis, data were tested to fit the assumptions. However, some financial data such as earnings and cash flows had positive and negative signs, so transformation of some groups of data was mismatch. Therefore, only market value of equity representing SIZE was transformed by natural logarithm to meet the normality distribution. Consequently, the central limit theorem which was applied as population for data collection was distributed in normality (Gujarati, 2004).

The conditions of multiple regression helped in analyzing such as normal distribution of error term, constant variance of error term, independent of error (1.5<Durbin-Watson <2.5), and no multicollinearity (VIF<10) among dependent variables (Johnson & Bhattacharyya, 2011; Kutner et al., 2005).

The distribution of error term was normal, tested by scatter chart. Mean of error term in every model was zero. The variance of residual was homoscedasticity. Durbin-Watson value was used to examine the criteria of autocorrelation while the VIF value was used to examine for multicollinearity problems.

Due to the difference of each variable unit causing wide ranges of beta value of the variables, the standardized values were applied to minimize the differences of beta values. EARN, CI, CFO, FCF, SIZE, GROWTH, and RISK were transformed to the same unit. The results of beta values in regression models were actually in the appropriated ranges.

In order to answer the research question 1, statistical method used to examine the predictability of financial performance was simple regression at a significance level of 0.05. Past financial performances were collected as EARN, CI, CFO, and FCF. The predictive ability for future firm performance of each financial performance was examined from Adjusted R^2 value. This study focused on one, two, and three-year ahead firms' performance prediction to investigate which variable has the best predictive ability. Past financial performances included earnings before interest and tax (EARN), comprehensive income (CI), operating cash flows (CFO), and free cash flows (FCF). To test this hypothesis, it was classified into one-year ahead, two-year ahead, and three-year ahead to investigate whether each of four variables has the predictive ability for future earning and future cash flows as follows.

H1: Past financial performance has a predictive ability for future firm performance.

- Ability to predict future earnings.

$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZEARN_{i,t} + \varepsilon_{i,t}$ H1.1.1, H1.2.1, H1.3.1

$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZCI_{i,t} + \varepsilon_{i,t}$ H1.1.2, H1.2.2, H1.3.2

$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZCFO_{i,t} + \varepsilon_{i,t}$ H1.1.3, H1.2.3, H1.3.3

$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZFCF_{i,t} + \varepsilon_{i,t}$ H1.1.4, H1.2.4, H1.3.4

- Ability to predict future cash flows

$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZEARN_{i,t} + \varepsilon_{i,t}$ H1.4.1, H1.5.1, H1.6.1

$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZCI_{i,t} + \varepsilon_{i,t}$ H1.4.2, H1.5.2, H1.6.2

$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZCFO_{i,t} + \varepsilon_{i,t}$ H1.4.3, H1.5.3, H1.6.3

$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZFCF_{i,t} + \varepsilon_{i,t}$ H1.4.4, H1.5.4, H1.6.4

According the second research question, this research was divides into two major models: future earnings and future operating cash flows. By applying from the model of Barth, Beaver, and Hand (1999), the specification used in this research was:

H2: Financial and non-financial factors have the effects on the predictability of future firm performance.

- Future Earnings Predication:

$$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZEARN_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.1.1, H2.2.1, H2.3.1}$$

$$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZCI_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.1.2, H2.2.2, H2.3.2}$$

$$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZCFO_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.1.3, H2.2.3, H2.3.3}$$

$$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZFCF_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.1.4, H2.2.4, H2.3.4}$$

where:

$ZEARN_{i,t+n}$ = Standardized value of earnings before interest and tax of company *i* in the one, two, or three-year-ahead of year *t* (predicted year);

$ZEARN_{i,t}$ = Standardized value of earnings before interest and tax of company *i* in the year *t*;

$ZSIZE_{i,t}$ = Standardized value of market value of equity of company *i* at the ending of the fiscal year *t*;

$ZGROWTH_{i,t}$= Standardized value of change in total assets of company *i* computed from total assets at the ending of fiscal year *t* minus total assets at the ending of fiscal year *t-1* divided by total assets at the ending of fiscal year *t*;

$BIG4_{i,t}$ = Dummy variable of audit firm of company *i* in year *t*, code 1 if audit by Big 4, 0 otherwise;

$AUDITC_{i,t}$ = Changed audit firm of company *i* comparing between year*t* and year *t-1*, code 1 if change audit firm, 0 otherwise;

$ZRISK_{i,t}$ = Standardized value of market risk, collected from beta value of company *i* at the ending fiscal of year *t*;

$ZCI_{i,t}$ = Standardized value of comprehensive income of company *i* in year *t*;

$ZCFO_{i,t}$ = Standardized value of operating cash flows of company *i* in year *t*;

$ZFCF_{i,t}$ = Standardized value of free cash flows of company *i* in year *t*; and

IND = Industry, comprised two industries in this study, Technology Industry = 0, Agro & Food Industry = 1.

- Future Operating Cash Flows Prediction:

$$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZEARN_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.4.1, H2.5.1, H2.6.1}$$

$$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZCI_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.4.2, H2.5.2, H2.6.2}$$

$$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZCFO_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.4.3, H2.5.3, H2.6.3}$$

$$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZFCF_{i,t} + \beta_2 ZSIZE_{i,t} + \beta_3 ZGROWTH_{i,t} + \beta_4 BIG4_{i,t} + \beta_5 AUDITC_{i,t} + \beta_6 ZRISK_{i,t} + \beta_7 IND + \varepsilon_{i,t} \quad \text{H2.4.4, H2.5.4, H2.6.4}$$

where:

$ZCFO_{i,t+n}$ = Standardized value of operating cash flows of company *i* in the one, two, or three-year-ahead of year *t* (predicted year);

$ZEARN_{i,t}$ = Standardized value of earnings before interest and tax of company *i* in the year *t*;

$ZSIZE_{i,t}$ = Standardized value of market value of equity of company *i* at the ending of the fiscal year *t*;

$ZGROWTH_{i,t}$= Standardized value of change in total assets of company *i* computed from total assets at the ending of fiscal year *t* minus total assets at the ending of fiscal year *t-1* divided by total assets at the ending of fiscal year *t*;

$BIG4_{i,t}$ = Dummy variable of audit firm of company *i* in year *t*, code 1 if audit by Big 4, 0 otherwise;

$AUDITC_{i,t}$ = Changed audit firm of company *i* comparing between year$_t$ and year $_{t-1}$, code 1 if change audit firm, 0 otherwise;

$ZRISK_{i,t}$ = Standardized value of market risk, collected from beta value of company *i* at the ending fiscal of year *t*;

$ZCI_{i,t}$ = Standardized value of comprehensive Income of company *i* in year *t*;

$ZCFO_{i,t}$ = Standardized value of operating cash flows of company *i* in year *t*;

$ZFCF_{i,t}$ = Standardized value of free cash flows of company *i* in year *t;* and

IND = Industry, comprised of two industries in this study, Technology Industry = 0, Agro & Food Industry =1.

Prediction models shall be investigated from combination of past financial performances plus control variables by using stepwise regression method for the best predictability model of Thai listed company in Agro & Food Industry and Technology Industry.

H3: Combination of past financial performance has a predictive ability for future firm performance.

The combination of past financial performances consisted of EARN, CI, CFO, and FCF. Financial factors were composed of firm size and firm growth while non-financial factors consisted of auditor quality (auditor type and audit firm change) and market risk.

To test this hypothesis, it was classified into one-year-ahead, two-year-ahead, and three-year-ahead to investigate whether each of four variables has the predictive ability for future earnings and future cash flows.

- Future Earnings Prediction

$$ZEARN_{i,t+n} = \beta_0 + \beta_1 ZEARN_{i,t} + \beta_2 ZCI_{i,t} + \beta_3 ZCFO_{i,t} + \beta_4 ZFCF_{i,t} + \beta_5 ZSIZE_{i,t} + \beta_6 ZGROWTH_{i,t} + \beta_7 BIG4_{i,t} + \beta_8 AUDITC_{i,t} + \beta_9 ZRISK_{i,t} + \beta_{10} IND + \varepsilon_{i,t} \quad \text{H3.1.1, H3.1.2, H3.1.3}$$

- Future Cash Flows Prediction

$$ZCFO_{i,t+n} = \beta_0 + \beta_1 ZEARN_{i,t} + \beta_2 ZCI_{i,t} + \beta_3 ZCFO_{i,t} + \beta_4 ZFCF_{i,t} + \beta_5 ZSIZE_{i,t} + \beta_6 ZGROWTH_{i,t} + \beta_7 BIG4_{i,t} + \beta_8 AUDITC_{i,t} + \beta_9 ZRISK_{i,t} + \beta_{10} IND + \varepsilon_{i,t} \quad \text{H3.1.1, H3.1.2, H3.1.3}$$

The results from the hypothesis testing stated the best predictability models for two industries of Thai listed company: Agro & Food Industry and Technology Industry. The regression forms of these models were developed from the model of Barth and financial and non-financial factors from review literatures were also added. In addition, past firm performance and financial and non-financial factors were used to forecast future earnings and future operating cash flows.

CHAPTER 4

RESEARCH RESULT

This chapter presented the results of the study consisting of descriptive statistic, simple regression analysis, and multiple regression analysis.

4.1 Descriptive Statistics

The descriptive statistics were summarized in terms of mean, standard deviation, minimum, and maximum of each variable to make it easier to understand. The descriptive statistics of the variables in this study were shown in Table 4.1. Data had been collected from listed companies on SET in two industries for the period of 2005 to 2010. EARN was earning before interest and tax while CFO was operating cash flows. CI was comprehensive income, and FCF was free cash flows. SIZE was natural logarithm of market value, and GROWTH was ratio of increasing or decreasing of total assets. BIG4 was high quality audit firms. AUDITC was the change of audit firm, and RISK was market beta value.

According to earnings of organization, earnings before interest and tax (EARN) of pooled industry ranged from -10,907 to 18,070 million Baht. By focusing on two industries, EARN of Agro & Food Industry ranged from -273 million Baht to 18,070 million Baht, and mean was approximately 785 million Baht while standard deviation was 851 million Baht. On the other hand, regarding Technology Industry, EARN ranged from -10,907 to 15,565 million Baht, and mean was 1,068 million Baht while standard deviation was 3,902 million Baht. These showed that the interval of

financial information of listed company in TECH industry was much wider than AGRO industry.

The other type of earnings in this study was comprehensive income (CI) of pooled industry ranging from -4,294 to 10,055 million Baht while mean was 491 million Baht, and standard deviation was 1,402 million Baht. Regarding the analysis of two separating industries, it showed that CI of Agro & Food Industry ranged from -354 to 10,055 million Baht while CI of Technology Industry ranged from -4,294 to 9,325 million Baht. By comparing both types of earnings, EARN and CI, the information showed that the range of earnings of TECH industry was wider than AGRO industry.

The performance was measured from cash flows stated in this study. First of all, operating cash flows (CFO) of pooled industry ranged from -7,529 to 23,582 million Baht while mean was 1,129 million Baht, and standard deviation was 3,071 million Baht. To compare between two industries, the result showed that CFO of AGRO industry ranged from -7,529 to 22,340 million Baht while CFO of TECH industry ranged from -2,991 to 23,582 million Baht. The result showed that minimum cash from operation was from AGRO companies while the maximum CFO was from listed companies in TECH industry.

The free cash flows (FCF) of pooled industry ranged from -10,141 to 18,073 million Baht while mean was 324 million Baht, and standard deviation was 899 million Baht. For AGRO industry, FCF ranged from -5,173 to 18,073 million Baht while FCF of TECH industry ranged from -10,141 to 12,969 million Baht. By comparing with CFO, it showed that TECH companies had invested in capital expenditure in big amount of money (Figure 4.4, 4.5 and 4.6).

Considering SIZE which was transformed in natural logarithm from firm market value, the SIZE of pool industry ranged from 16.21 to 25.57. The SIZE of AGRO industry ranged from 16.21 to 25.17, and that of TECH industry ranged 18.75 to 25.57. The mean of pooled, AGRO, and TECH industry based on overall samples during the studying period were 21.40, 21.20, and 21.65, respectively. It showed that size of both industries were in the same range (Table 4.6 and Figure 4.10).

While GROWTH, measured from the difference of total assets, the data showed the proportion change of total asset of pooled industry which ranged from -0.96 to 28.93, and that of AGRO industry was -0.96 to 28.93 while TECH industry had proportion change from -0.70 to 1.15. The mean of POOL, AGRO, and TECH industry based on overall samples during the studying period were 0.16, 0.33, and 0.05, respectively. That meant the growth of listed companies in AGRO industry was higher in total assets while change in total assets of TECH industry was not grow too much (Table 4.3 and Figure 4.7).

The RISK variable was appraised from beta calculated by SET for AGRO and TECH which were from -0.44 to 2.4 and from -0.06 to 2.03, respectively. Table 4.1 showed that AGRO listed companies chose BIG4 audit firm for approximately 74 percent whereas TECH listed companies chose BIG4 audit firm for approximately 70 percent. However, TECH industry tended to change audit firm more than AGRO industry (Table 4.5, Figure 4.10, 4.11, and 4.12).

Table 4.1 Mean, standard deviation, minimum and maximum value of independent and control variables classified by industry

POOL							
Variable	**Year**	**Unit**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
EARN	**2005-2010**	**Baht**	**413**	**912,929,679.31**	**2,297,795,260.14**	**-10,906,694,377.00**	**18,070,093,000.00**
EARN	2010	Baht	68	1,174,134,212.76	3,474,899,674.81	-10,906,694,377.00	18,070,093,000.00
EARN	2009	Baht	69	1,113,674,294.08	2,543,808,505.71	-1,286,205,923.00	14,878,463,000.00
EARN	2008	Baht	70	885,400,511.04	2,203,476,520.14	-1,598,705,621.00	14,357,075,331.00
EARN	2007	Baht	70	958,103,159.79	1,913,442,494.85	-584,863,900.00	11,014,876,954.00
EARN	2006	Baht	69	586,381,107.61	987,379,738.39	-956,757,094.00	4,829,937,000.00
EARN	2005	Baht	67	718,391,281.26	1,768,920,373.26	-403,681,135.00	10,233,551,127.00
CI	**2005-2010**	**Baht**	**345**	**491,195,278.30**	**1,401,930,825.09**	**-4,293,975,526.00**	**10,054,896,000.00**
CI	2009	Baht	69	716,640,445.40	1,712,037,962.70	-2,488,770,401.00	10,054,896,000.00
CI	2008	Baht	70	458,014,730.55	1,585,122,646.01	-3,385,174,428.00	9,325,202,043.00
CI	2007	Baht	70	560,333,393.11	1,196,830,264.77	-2,028,223,733.00	7,488,563,274.00
CI	2006	Baht	69	318,162,032.61	1,023,799,745.75	-4,180,032,075.00	4,964,054,000.00
CI	2005	Baht	67	399,651,214.52	1,385,862,564.57	-4,293,975,526.00	8,961,116,117.00
CFO	**2005-2009**	**Baht**	**413**	**1,128,616,949.73**	**3,071,114,552.87**	**-7,528,902,087.00**	**23,582,459,832.00**
CFO	2010	Baht	68	1,496,688,320.14	4,228,860,050.95	-7,528,902,087.00	23,582,459,832.00
CFO	2009	Baht	69	1,452,159,547.58	3,874,438,550.27	-4,378,011,343.00	22,339,527,000.00
CFO	2008	Baht	70	1,062,915,588.86	2,844,233,581.46	-1,096,396,654.00	19,326,350,730.00
CFO	2007	Baht	70	988,849,137.53	2,746,649,382.28	-1,633,736,605.00	17,942,391,234.00
CFO	2006	Baht	69	767,851,650.79	1,808,327,308.40	-1,201,617,434.00	12,927,756,061.00
CFO	2005	Baht	67	716,039,438.94	1,821,684,629.81	-2,991,667,909.00	11,604,117,513.00
FCF	**2005-2009**	**Baht**	**345**	**324,712,955.45**	**1,872,409,045.80**	**-10,141,209,877.00**	**18,073,169,000.00**
FCF	2009	Baht	69	907,925,436.55	3,144,132,750.78	-5,173,672,181.00	18,073,169,000.00
FCF	2008	Baht	70	381,649,005.19	1,365,172,183.51	-2,986,231,918.00	8,037,665,964.00
FCF	2007	Baht	70	316,107,408.09	1,147,738,864.33	-2,672,304,075.00	5,467,960,408.00
FCF	2006	Baht	69	81,797,656.67	951,987,534.28	-4,656,741,000.00	3,328,824,186.00
FCF	2005	Baht	67	-76,236,906.46	1,801,329,812.34	-10,141,209,877.00	5,430,936,208.00
SIZE	**2005-2009**	**Ratio**	**345**	**21.40**	**1.52**	**16.21**	**25.57**
SIZE	2009	Ratio	69	21.48	1.60	16.21	25.17
SIZE	2008	Ratio	70	21.06	1.49	17.44	25.05
SIZE	2007	Ratio	70	21.48	1.48	18.21	25.26
SIZE	2006	Ratio	69	21.31	1.38	18.59	24.35
SIZE	2005	Ratio	67	21.34	1.36	18.61	24.55
GROWTH	**2005-2009**	**Ratio**	**345**	**0.16**	**1.58**	**-0.96**	**28.93**
GROWTH	2009	Ratio	69	0.03	0.18	-0.59	0.68
GROWTH	2008	Ratio	70	0.48	3.46	-0.70	28.93
GROWTH	2007	Ratio	70	0.03	0.22	-0.96	0.53
GROWTH	2006	Ratio	69	0.09	0.18	-0.40	0.78
GROWTH	2005	Ratio	67	0.16	0.48	-0.25	3.67

Table 4.1 Mean, standard deviation, minimum and maximum value of independent and control variables classified by industry (Cont.)

POOL							
Variable	**Year**	**Unit**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
RISK	**2005-2009**	**Ratio**	**345**	**0.49**	**0.44**	**-0.44**	**2.40**
RISK	2009	Ratio	69	0.42	0.37	-0.16	1.25
RISK	2008	Ratio	70	0.53	0.44	-0.08	2.03
RISK	2007	Ratio	70	0.46	0.44	-0.26	1.92
RISK	2006	Ratio	69	0.55	0.41	-0.06	1.65
RISK	2005	Ratio	67	0.49	0.52	-0.44	2.40
BIG4	**2005-2009**	**percentage**	**345**	**73.33**			
BIG4	2009	percentage	69	71.01			
BIG4	2008	percentage	70	71.43			
BIG4	2007	percentage	70	72.86			
BIG4	2006	percentage	69	72.46			
BIG4	2005	percentage	67	79.10			
AUDITC	**2005-2009**	**percentage**	**345**	**7.58**			
AUDITC	2009	percentage	69	2.90			
AUDITC	2008	percentage	70	14.29			
AUDITC	2007	percentage	70	7.14			
AUDITC	2006	percentage	69	8.70			
AUDITC	2005	percentage	67	4.48			

AGRO							
Variable	**Year**	**Unit**	**N**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
EARN	**2005-2010**	**Baht**	**226**	**785,969,430.93**	**1,914,153,112.31**	**-273,279,797.00**	**18,070,093,000.00**
EARN	2010	Baht	36	1,198,910,024.11	3,098,578,646.54	-81,130,421.00	18,070,093,000.00
EARN	2009	Baht	38	1,042,306,712.58	2,496,945,977.99	-116,314,278.00	14,878,463,000.00
EARN	2008	Baht	38	699,795,266.05	1,157,184,140.44	-165,269,041.00	5,900,103,000.00
EARN	2007	Baht	38	526,023,478.46	876,614,956.15	-273,279,797.00	3,824,451,000.00
EARN	2006	Baht	38	523,674,502.85	938,125,768.54	-48,212,915.00	4,829,937,000.00
EARN	2005	Baht	38	587,887,813.71	1,622,158,912.68	-114,620,717.00	9,730,462,000.00
CI	**2005-2009**	**Baht**	**190**	**471,087,315.49**	**1,009,630,666.42**	**-354,012,372.00**	**10,054,896,000.00**
CI	2009	Baht	38	779,166,498.57	1,714,381,353.77	-151,624,874.00	10,054,896,000.00
CI	2008	Baht	38	460,903,614.73	701,150,905.92	-294,653,768.00	3,148,538,000.00
CI	2007	Baht	38	412,545,245.96	729,373,063.99	-320,599,630.00	2,913,533,000.00
CI	2006	Baht	38	401,231,317.46	872,312,533.17	-129,323,829.00	4,964,054,000.00
CI	2005	Baht	38	301,589,900.73	589,676,790.40	-354,012,372.00	2,584,470,000.00
CFO	**2005-2010**	**Baht**	**226**	**728,155,062.39**	**2,098,576,070.74**	**-7,528,902,087.00**	**22,339,527,000.00**
CFO	2010	Baht	36	695,567,514.96	1,897,385,260.55	-7,528,902,087.00	9,581,458,000.00
CFO	2009	Baht	38	1,256,927,944.37	3,894,666,868.42	-4,378,011,343.00	22,339,527,000.00
CFO	2008	Baht	38	723,773,413.50	1,305,132,448.00	-289,261,774.00	6,424,332,000.00

Table 4.1 Mean, standard deviation, minimum and maximum value of independent and control variables classified by industry (Cont.)

AGRO							
Variable	**Year**	**Unit**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
CFO	2007	Baht	38	364,669,503.53	1,158,880,469.89	-1,633,736,605.00	6,144,698,000.00
CFO	2006	Baht	38	405,323,315.47	816,073,400.75	-1,201,617,434.00	3,798,301,000.00
CFO	2005	Baht	38	406,984,392.81	665,219,028.50	-994,575,646.00	2,887,843,000.00
FCF	**2005-2009**	**Baht**	**190**	**195,918,322.72**	**1,761,063,523.60**	**-5,173,672,181.00**	**18,073,169,000.00**
FCF	2009	Baht	38	832,051,661.95	3,493,336,004.20	-5,173,672,181.00	18,073,169,000.00
FCF	2008	Baht	38	274,480,489.58	834,276,653.34	-1,448,829,612.00	3,727,142,945.00
FCF	2007	Baht	38	-9,332,623.66	497,220,502.60	-1,782,704,289.00	856,762,001.00
FCF	2006	Baht	38	-69,670,975.96	1,067,870,874.21	-4,656,741,000.00	3,328,824,186.00
FCF	2005	Baht	38	-47,936,938.32	977,900,411.10	-4,818,278,000.00	2,762,361,895.00
SIZE	**2005-2009**	**Ratio**	**190**	**21.20**	**1.50**	**16.21**	**25.17**
SIZE	2009	Ratio	38	21.51	1.71	16.21	25.17
SIZE	2008	Ratio	38	20.93	1.55	17.44	24.08
SIZE	2007	Ratio	38	21.22	1.52	18.21	24.71
SIZE	2006	Ratio	38	21.22	1.38	18.59	24.35
SIZE	2005	Ratio	38	21.12	1.36	18.61	24.55
GROWTH	**2005-2009**	**Ratio**	**190**	**0.24**	**2.12**	**-0.96**	**28.93**
GROWTH	2009	Ratio	38	0.05	0.14	-0.26	0.51
GROWTH	2008	Ratio	38	0.87	4.69	-0.23	28.93
GROWTH	2007	Ratio	38	0.01	0.25	-0.96	0.53
GROWTH	2006	Ratio	38	0.11	0.17	-0.13	0.78
GROWTH	2005	Ratio	38	0.18	0.60	-0.25	3.67
RISK	**2005-2009**	**Ratio**	**190**	**0.33**	**0.36**	**-0.44**	**2.40**
RISK	2009	Ratio	38	0.27	0.33	-0.16	1.23
RISK	2008	Ratio	38	0.39	0.35	-0.08	1.60
RISK	2007	Ratio	38	0.29	0.33	-0.26	1.54
RISK	2006	Ratio	38	0.42	0.34	-0.03	1.42
RISK	2005	Ratio	38	0.27	0.44	-0.44	2.40
BIG4	**2005-2009**	**percentage**	**190**	**75.79**			
BIG4	2009	percentage	38	76.32			
BIG4	2008	percentage	38	76.32			
BIG4	2007	percentage	38	73.68			
BIG4	2006	percentage	38	73.68			
BIG4	2005	percentage	38	78.95			
AUDITC	**2005-2009**	**percentage**	**190**	**6.91**			
AUDITC	2009	percentage	38	0.00			
AUDITC	2008	percentage	38	10.53			

Table 4.1 Mean, standard deviation, minimum and maximum value of independent and control variables classified by industry (Cont.)

TECH							
Variable	**Year**	**Unit**	**N**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
AUDITC	2007	percentage	38	10.53			
AUDITC	2006	percentage	38	7.89			
AUDITC	2005	percentage	38	5.26			
EARN	**2005-2010**	**Baht**	**187**	**1,068,558,370.87**	**2,693,141,277.72**	**-10,906,694,377.00**	**15,565,075,161.00**
EARN	2010	Baht	32	1,146,261,425.00	3,905,874,663.19	-10,906,694,377.00	15,565,075,161.00
EARN	2009	Baht	31	1,201,157,135.93	2,638,871,275.26	-1,286,205,923.00	10,271,526,496.00
EARN	2008	Baht	32	1,105,806,739.46	3,019,329,806.16	-1,598,705,621.00	14,357,075,331.00
EARN	2007	Baht	32	1,471,197,781.37	2,594,506,960.09	-584,863,900.00	11,014,876,954.00
EARN	2006	Baht	31	663,247,268.28	1,055,129,302.00	-956,757,094.00	3,806,588,265.00
EARN	2005	Baht	29	889,395,824.95	1,960,887,481.97	-403,681,135.00	10,233,551,127.00
CI	**2005-2009**	**Baht**	**155**	**515,843,748.83**	**1,771,477,003.25**	**-4,293,975,526.00**	**9,325,202,043.00**
CI	2009	Baht	31	639,995,606.03	1,734,315,769.10	-2,488,770,401.00	6,613,659,179.00
CI	2008	Baht	32	454,584,180.59	2,237,365,910.42	-3,385,174,428.00	9,325,202,043.00
CI	2007	Baht	32	735,831,817.86	1,579,472,927.13	-2,028,223,733.00	7,488,563,274.00
CI	2006	Baht	31	216,335,167.31	1,190,759,624.60	-4,180,032,075.00	3,419,413,966.00
CI	2005	Baht	29	528,145,349.84	2,009,360,064.05	-4,293,975,526.00	8,961,116,117.00
CFO	**2005-2010**	**Baht**	**187**	**1,450,239,743.85**	**3,390,652,256.66**	**-2,991,667,909.00**	**19,326,350,730.00**
CFO	2010	Baht	32	2,397,949,225.97	5,744,782,989.65	-465,725,184.00	23,582,459,832.00
CFO	2009	Baht	31	1,691,475,706.35	3,900,046,595.89	-543,894,840.00	19,107,806,514.00
CFO	2008	Baht	32	1,465,646,922.10	3,957,847,749.95	-1,096,396,654.00	19,326,350,730.00
CFO	2007	Baht	32	1,730,062,452.91	3,760,855,476.59	-1,190,065,486.00	17,942,391,234.00
CFO	2006	Baht	31	1,212,241,223.12	2,494,032,698.54	-306,571,587.00	12,927,756,061.00
CFO	2005	Baht	29	1,121,008,120.08	2,634,012,673.78	-2,991,667,909.00	11,604,117,513.00
FCF	**2005-2009**	**Baht**	**155**	**482,590,247.18**	**1,994,905,330.28**	**-10,141,209,877.00**	**12,969,053,592.00**
FCF	2009	Baht	31	1,000,931,998.97	2,709,281,742.00	-1,125,041,820.00	12,969,053,592.00
FCF	2008	Baht	32	508,911,617.49	1,812,925,049.75	-2,986,231,918.00	8,037,665,964.00
FCF	2007	Baht	32	702,567,445.79	1,533,945,959.63	-2,672,304,075.00	5,467,960,408.00
FCF	2006	Baht	31	267,468,883.77	763,624,300.87	-1,359,312,135.00	2,222,583,910.00
FCF	2005	Baht	29	-113,319,623.33	2,526,312,012.36	-10,141,209,877.00	5,430,936,208.00
SIZE	**2005-2009**	**Ratio**	**155**	**21.65**	**1.51**	**18.75**	**25.57**
SIZE	2009	Ratio	31	21.44	1.49	18.92	25.16
SIZE	2008	Ratio	32	21.22	1.43	18.75	25.05
SIZE	2007	Ratio	32	21.80	1.39	19.68	25.26
SIZE	2006	Ratio	31	21.42	1.39	19.03	23.87
SIZE	2005	Ratio	29	21.62	1.35	19.32	24.25
GROWTH	**2005-2009**	**Ratio**	**155**	**0.05**	**0.21**	**-0.70**	**1.15**
GROWTH	2009	Ratio	31	0.00	0.23	-0.59	0.68
GROWTH	2008	Ratio	32	0.01	0.18	-0.70	0.34

Table 4.1 Mean, standard deviation, minimum and maximum value of independent and control variables classified by industry (Cont.)

TECH							
Variable	**Year**	**Unit**	**N**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
GROWTH	2007	Ratio	32	0.05	0.18	-0.21	0.49
GROWTH	2006	Ratio	31	0.07	0.19	-0.40	0.55
GROWTH	2005	Ratio	29	0.13	0.25	-0.11	1.15
RISK	**2005-2009**	**Ratio**	**155**	**0.69**	**0.45**	**-0.09**	**2.03**
RISK	2009	Ratio	31	0.61	0.35	-0.01	1.25
RISK	2008	Ratio	32	0.70	0.49	0.01	2.03
RISK	2007	Ratio	32	0.66	0.46	0.09	1.92
RISK	2006	Ratio	31	0.71	0.44	-0.06	1.65
RISK	2005	Ratio	29	0.78	0.49	-0.09	2.01
BIG4	**2005-2009**	**percentage**	**155**	**70.32**			
BIG4	2009	percentage	31	64.52			
BIG4	2008	percentage	32	65.63			
BIG4	2007	percentage	32	71.88			
BIG4	2006	percentage	31	70.97			
BIG4	2005	percentage	29	79.31			
AUDITC	**2005-2009**	**percentage**	**155**	**8.39**			
AUDITC	2009	percentage	31	6.45			
AUDITC	2008	percentage	32	18.75			
AUDITC	2007	percentage	32	3.13			
AUDITC	2006	percentage	31	9.68			
AUDITC	2005	percentage	29	3.45%			

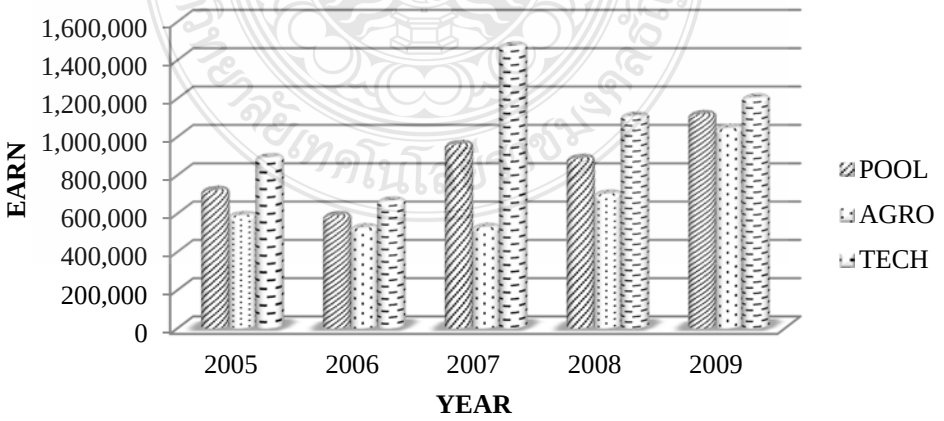

Figure 4.1 Comparison of mean of EARN in POOL, AGRO & TECH industries from 2005 to 2009

Table 4.2 The comparison of mean of earnings and cash flows in POOL, AGRO & TECH industries from 2005 to 2009.

	YEAR				
	2005	**2006**	**2007**	**2008**	**2009**
EARN (MEAN)					Unit: Baht
POOL	718,391	586,381	958,103	885,400	1,113,674
AGRO	587,887	523,674	526,023	699,795	1,042,306
TECH	889,395	663,247	1,471,197	1,105,806	1,201,157
CI (MEAN)					
POOL	399,651	318,162	560,333	458,014	716,640
AGRO	301,589	401,231	412,545	460,903	779,166
TECH	528,145	216,335	735,831	454,584	639,995
CFO (MEAN)					
POOL	716,039	767,851	988,849	990,312	1,507,466
AGRO	406,984	405,323	364,669	590,031	1,357,353
TECH	1,121,008	1,212,241	1,730,062	1,465,646	1,691,475
FCF (MEAN)					
POOL	-76,236	81,797	316,107	381,649	907,925
AGRO	-47,936	-69,670	-9,332	274,480	832,051
TECH	-113,319	267,468	702,567	508,911	1,000,931
No. of companies					
POOL	67	69	70	70	69
AGRO	38	38	38	38	38
TECH	29	31	32	32	31

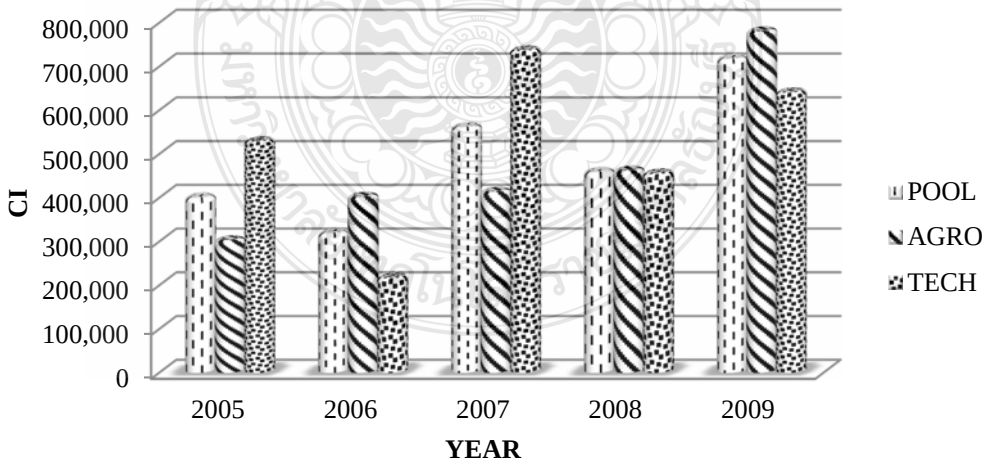

Figure 4.2 Comparison of mean of CI in POOL, AGRO & TECH industries from 2005 to 2009

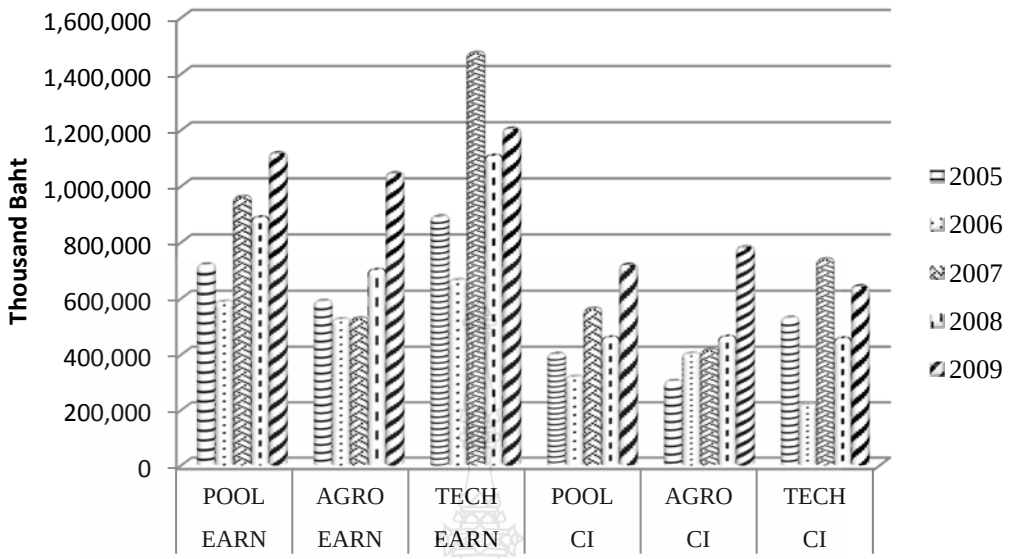

Figure 4.3 Comparison of EARN and CI in POOL, AGRO & TECH industries from 2005 to 2009

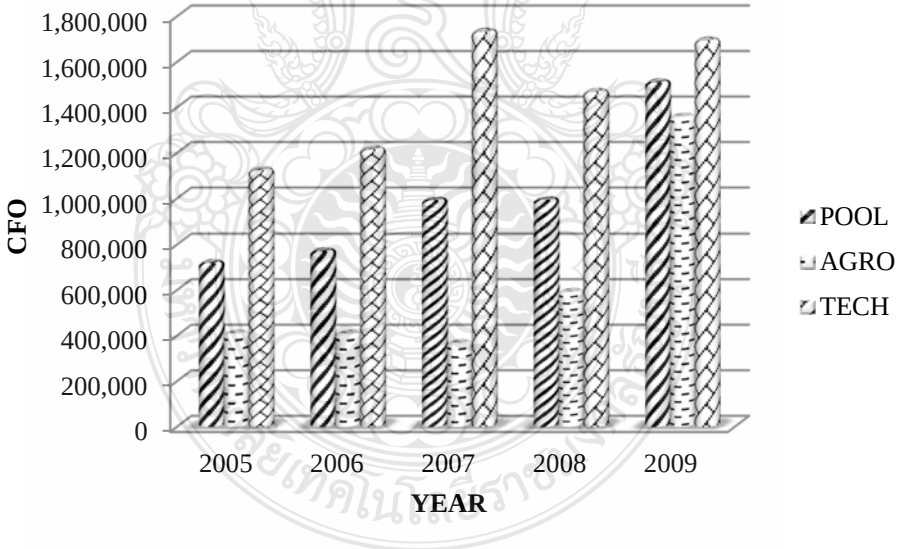

Figure 4.4 Comparison of mean of CFO in POOL, AGRO & TECH industries from 2005 to 2009

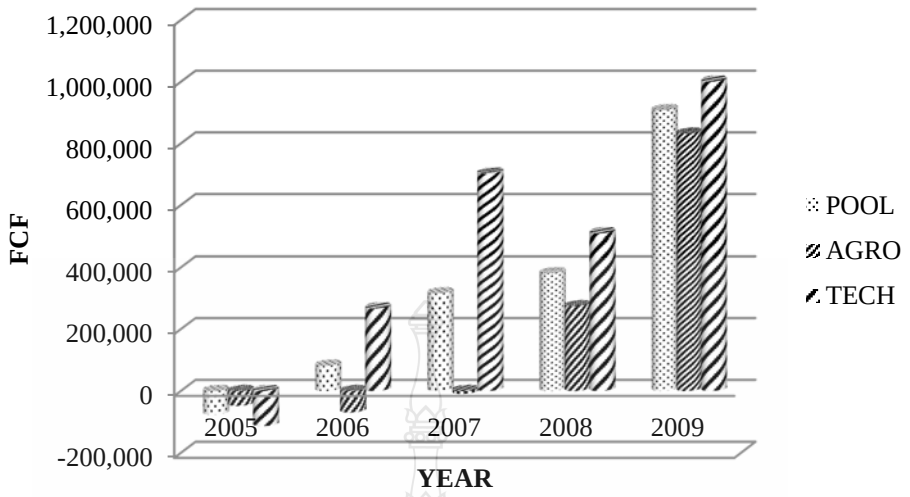

Figure 4.5 Comparison of mean of FCF in POOL, AGRO & TECH industries from 2005 to 2009

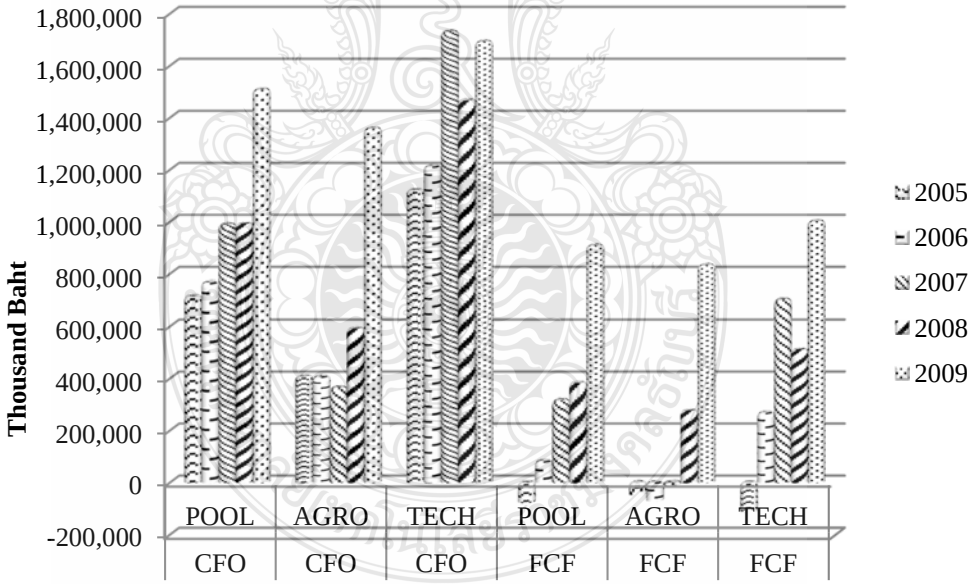

Figure 4.6 Comparison of CFO and FCF in POOL, AGRO & TECH industries from 2005 to 2009

Table 4.3 GROWTH comparison of listed companies in POOL, AGRO & TECH industries.

		YEAR				
		2005	**2006**	**2007**	**2008**	**2009**
						Unit: ratio
GROWTH (MEAN)	POOL	0.16	0.09	0.03	0.48	0.03
	AGRO	0.18	0.11	0.01	0.87	0.05
	TECH	0.13	0.07	0.05	0.01	0
No. of companies	POOL	67	69	70	70	69
	AGRO	38	38	38	38	38
	TECH	29	31	32	32	31

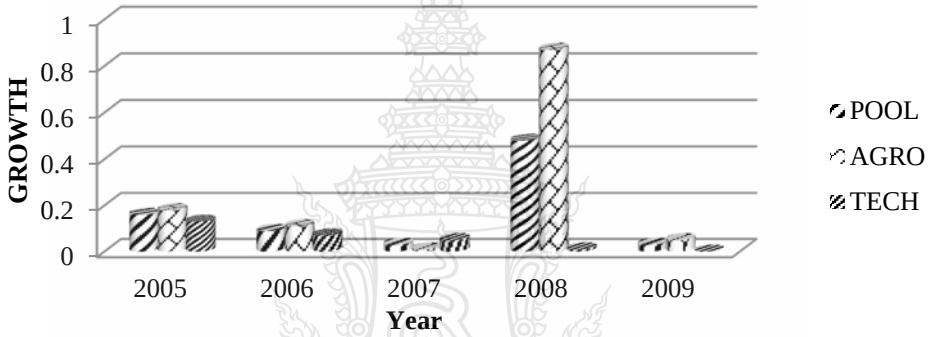

Figure 4.7 Comparison Mean of GROWTH in POOL, AGRO & TECH industries from 2005 to 2009

Table 4.4 Comparison of mean of RISK and SIZE in POOL, AGRO & TECH industries.

		YEAR				
		2005	**2006**	**2007**	**2008**	**2009**
						Unit: Ratio
RISK (MEAN)	POOL	0.49	0.55	0.46	0.53	0.42
	AGRO	0.27	0.42	0.29	0.39	0.27
	TECH	0.78	0.71	0.66	0.7	0.61
SIZE (MEAN)	POOL	21.40	21.39	21.54	21.12	21.55
	AGRO	21.12	21.22	21.22	20.94	21.51
	TECH	21.77	21.61	21.92	21.34	21.61
No. of companies	POOL	67	69	70	70	69
	AGRO	38	38	38	38	38
	TECH	29	31	32	32	31

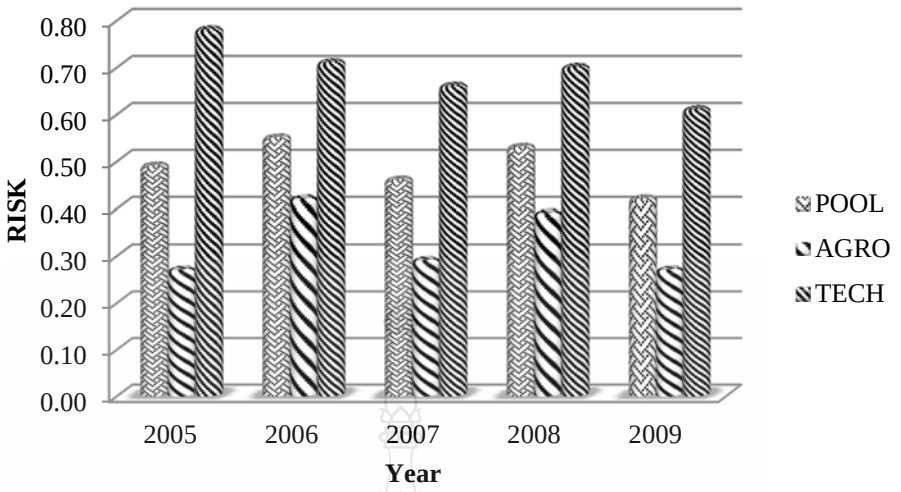

Figure 4.8 Comparison of mean of RISK in POOL, AGRO & TECH industries from 2005 to 2009.

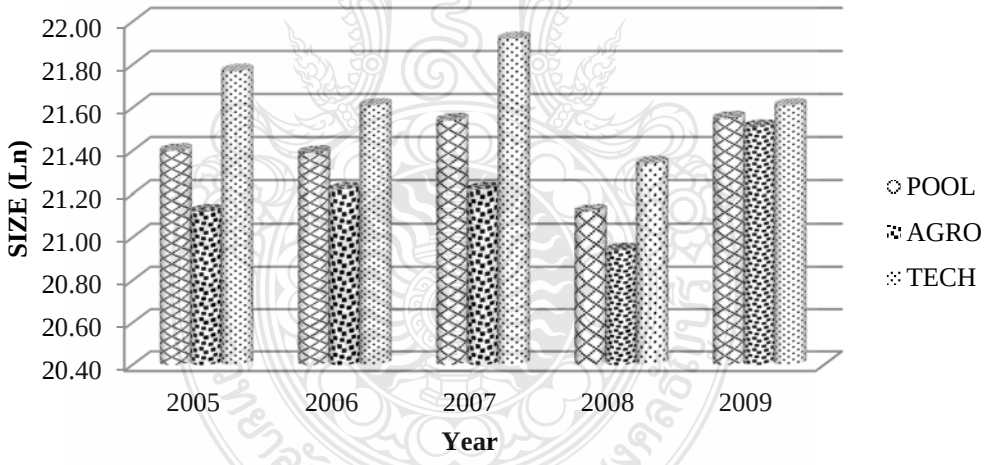

Figure 4.9 Comparison of mean of SIZE in POOL, AGRO & TECH industries from 2005 to 2009.

Table 4.5 Percentage of BIG4 audit firms and percentage of change of audit firms.

		YEAR				
		2005	**2006**	**2007**	**2008**	**2009**
BIG4 (Percentage)	POOL	79.1	72.46	72.86	71.43	71.01
	AGRO	78.95	73.68	73.68	76.32	76.32
	TECH	79.31	70.97	71.88	65.63	64.52
Auditor change (Percentage)	POOL	4.48	8.7	7.14	14.29	2.9
	AGRO	5.26	7.89	10.53	10.53	-
	TECH	3.45	9.68	3.13	18.75	6.45
No. of companies	POOL	67	69	70	70	69
	AGRO	38	38	38	38	38
	TECH	29	31	32	32	31

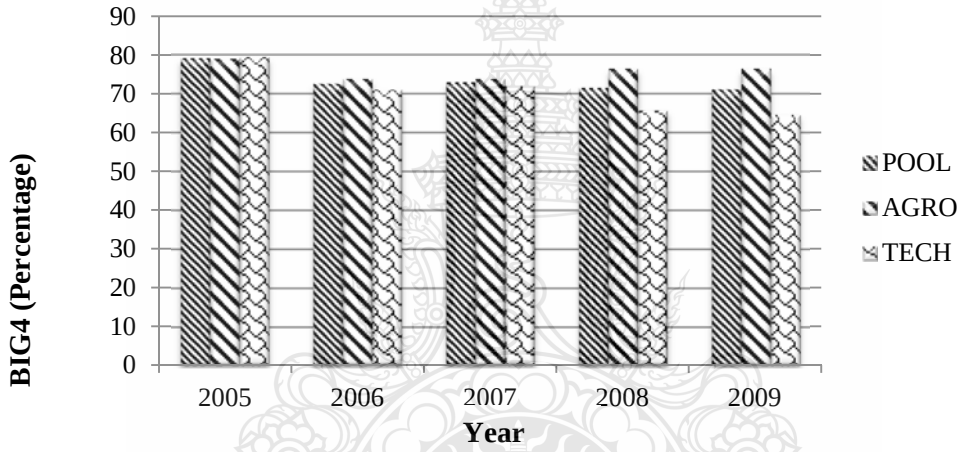

Figure 4.10 Comparison of percentage of BIG4 audit firm in POOL, AGRO & TECH industries during 2005 to 2009

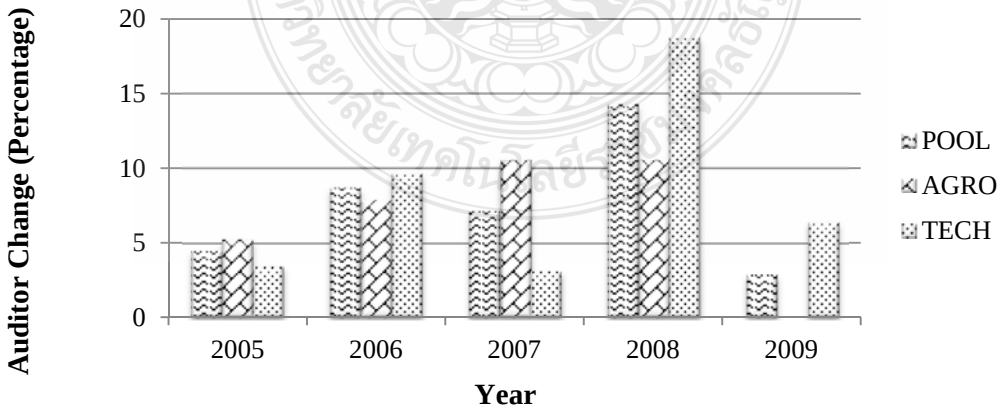

Figure 4.11 Comparison of percentage of auditor change in POOL, AGRO & TECH industries during 2005 to 2009

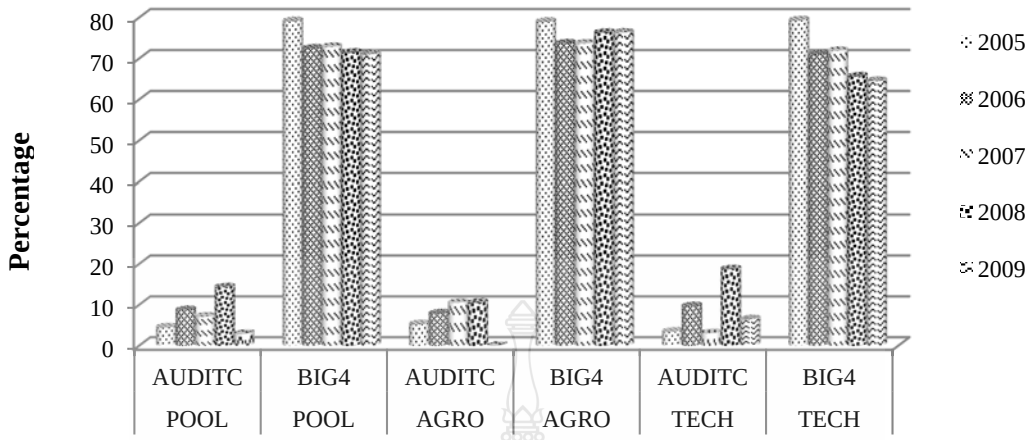

Figure 4.12 Comparison of percentage of auditor change and BIG4 audit firms in POOL, AGRO & TECH industries from 2005 to 2009.

Table 4.6 Mean, standard deviation, minimum and maximum value of standardized independent and control variables classified by industry

			POOL			
Variable	**Year**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
ZEARN	**2005-2010**	**413**	**-0.047**	**0.837**	**-5.199**	**7.554**
ZEARN	2010	68	0.118	1.529	-5.199	7.554
ZEARN	2009	69	0.091	1.120	-0.965	6.149
ZEARN	2008	70	-0.009	0.970	-1.103	5.920
ZEARN	2007	70	0.023	0.842	-0.656	4.449
ZEARN	2006	69	-0.141	0.435	-0.820	1.727
ZEARN	2005	67	-0.083	0.779	-0.577	4.105
ZCI	**2005-2009**	**345**	**-0.031**	**0.824**	**-2.842**	**5.587**
ZCI	2009	69	0.101	1.006	-1.781	5.587
ZCI	2008	70	-0.050	0.931	-2.308	5.158
ZCI	2007	70	0.010	0.703	-1.511	4.079
ZCI	2006	69	-0.133	0.601	-2.775	2.596
ZCI	2005	67	-0.085	0.814	-2.842	4.944
ZCFO	**2005-2010**	**413**	**-0.011**	**0.931**	**-1.803**	**7.432**
ZCFO	2010	68	0.137	1.397	-1.803	7.432
ZCFO	2009	69	0.123	1.280	-1.404	7.021
ZCFO	2008	70	-0.006	0.939	-0.719	6.026
ZCFO	2007	70	-0.031	0.907	-0.897	5.569
ZCFO	2006	69	-0.104	0.597	-0.754	3.913
ZCFO	2005	67	-0.121	0.602	-1.345	3.476

Table 4.6 Mean, standard deviation, minimum and maximum value of standardized independent and control variables classified by industry (Cont.)

POOL						
Variable	**Year**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
ZFCF	**2005-2009**	**345**	**-0.032**	**0.807**	**-4.544**	**7.620**
ZFCF	2009	69	0.220	1.356	-2.402	7.620
ZFCF	2008	70	-0.007	0.589	-1.459	3.294
ZFCF	2007	70	-0.035	0.495	-1.324	2.186
ZFCF	2006	69	-0.137	0.410	-2.179	1.263
ZFCF	2005	67	-0.205	0.777	-4.544	2.170
ZSIZE	**2005-2009**	**345**	**-0.064**	**0.757**	**-0.428**	**5.651**
ZSIZE	2009	69	0.037	1.003	-0.428	5.179
ZSIZE	2008	70	-0.138	0.670	-0.426	4.528
ZSIZE	2007	70	0.009	0.916	-0.423	5.651
ZSIZE	2006	69	-0.121	0.514	-0.421	2.031
ZSIZE	2005	67	-0.108	0.551	-0.421	2.572
ZRISK	**2005-2009**	**345**	**0.042**	**0.711**	**-1.460**	**3.125**
ZRISK	2009	69	-0.069	0.602	-1.008	1.268
ZRISK	2008	70	0.103	0.717	-0.879	2.528
ZRISK	2007	70	-0.009	0.709	-1.170	2.350
ZRISK	2006	69	0.137	0.666	-0.847	1.914
ZRISK	2005	67	0.046	0.846	-1.460	3.125
ZGROWTH	**2005-2009**	**345**	**0.008**	**1.092**	**-0.765**	**19.882**
ZGROWTH	2009	69	-0.080	0.126	-0.509	0.368
ZGROWTH	2008	70	0.230	2.392	-0.585	19.882
ZGROWTH	2007	70	-0.079	0.153	-0.765	0.265
ZGROWTH	2006	69	-0.038	0.126	-0.378	0.437
ZGROWTH	2005	67	0.007	0.328	-0.274	2.434
AGRO						
Variable	**Year**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
ZEARN	**2005-2010**	**226**	**-0.093**	**0.698**	**-0.519**	**7.554**
ZEARN	2010	36	0.129	1.364	-0.435	7.554
ZEARN	2009	38	0.060	1.099	-0.450	6.149
ZEARN	2008	38	-0.091	0.509	-0.472	2.198
ZEARN	2007	38	-0.167	0.386	-0.519	1.284
ZEARN	2006	38	-0.168	0.413	-0.420	1.727
ZEARN	2005	38	-0.140	0.714	-0.449	3.884
ZCI	**2005-2009**	**190**	**-0.043**	**0.593**	**-0.527**	**5.587**
ZCI	2009	38	0.138	1.007	-0.409	5.587
ZCI	2008	38	-0.049	0.412	-0.493	1.530
ZCI	2007	38	-0.077	0.428	-0.508	1.392
ZCI	2006	38	-0.084	0.512	-0.395	2.596

Table 4.6 Mean, standard deviation, minimum and maximum value of standardized independent and control variables classified by industry (Cont.)

AGRO						
Variable	**Year**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
ZCI	2005	38	-0.142	0.346	-0.527	1.199
ZCFO	**2005-2010**	**226**	**-0.138**	**0.639**	**-1.803**	**7.021**
ZCFO	2010	36	-0.127	0.627	-1.803	2.808
ZCFO	2009	38	0.058	1.286	-1.404	7.021
ZCFO	2008	38	-0.118	0.431	-0.453	1.765
ZCFO	2007	38	-0.237	0.383	-0.897	1.672
ZCFO	2006	38	-0.223	0.270	-0.754	0.897
ZCFO	2005	38	-0.223	0.220	-0.686	0.597
ZFCF	**2005-2009**	**190**	**-0.087**	**0.759**	**-2.402**	**7.620**
ZFCF	2009	38	0.187	1.506	-2.402	7.620
ZFCF	2008	38	-0.053	0.360	-0.796	1.435
ZFCF	2007	38	-0.176	0.214	-0.940	0.198
ZFCF	2006	38	-0.202	0.460	-2.179	1.263
ZFCF	2005	38	-0.192	0.422	-2.249	1.019
ZSIZE	**2005-2009**	**190**	**-0.101**	**0.675**	**-0.428**	**5.179**
ZSIZE	2009	38	0.053	1.000	-0.428	5.179
ZSIZE	2008	38	-0.190	0.416	-0.426	1.439
ZSIZE	2007	38	-0.085	0.693	-0.423	3.093
ZSIZE	2006	38	-0.130	0.565	-0.421	2.031
ZSIZE	2005	38	-0.153	0.567	-0.421	2.572
ZGROWTH	**2005-2009**	**190**	**0.067**	**1.465**	**-0.765**	**19.882**
ZGROWTH	2009	38	-0.064	0.095	-0.281	0.251
ZGROWTH	2008	38	0.501	3.240	-0.260	19.882
ZGROWTH	2007	38	-0.093	0.174	-0.765	0.265
ZGROWTH	2006	38	-0.029	0.120	-0.191	0.437
ZGROWTH	2005	38	0.020	0.412	-0.274	2.434
ZRISK	**2005-2009**	**190**	**-0.222**	**0.584**	**-1.460**	**3.125**
ZRISK	2009	38	-0.311	0.526	-1.008	1.236
ZRISK	2008	38	-0.128	0.566	-0.879	1.833
ZRISK	2007	38	-0.288	0.539	-1.170	1.736
ZRISK	2006	38	-0.073	0.545	-0.798	1.543
ZRISK	2005	38	-0.309	0.712	-1.460	3.125
TECH						
ZEARN	**2005-2010**	**187**	**0.010**	**0.981**	**-5.199**	**6.452**
ZEARN	2010	32	0.106	1.719	-5.199	6.452
ZEARN	2009	31	0.130	1.161	-0.965	4.122
ZEARN	2008	32	0.088	1.329	-1.103	5.920
ZEARN	2007	32	0.249	1.142	-0.656	4.449
ZEARN	2006	31	-0.107	0.464	-0.820	1.276

Table 4.6 Mean, standard deviation, minimum and maximum value of standardized independent and control variables classified by industry (Cont.)

TECH						
Variable	**Year**	**Obs.**	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
ZEARN	2005	29	-0.007	0.863	-0.577	4.105
ZCI	**2005-2009**	**155**	**-0.016**	**1.041**	**-2.842**	**5.158**
ZCI	2009	31	0.056	1.019	-1.781	3.565
ZCI	2008	32	-0.052	1.314	-2.308	5.158
ZCI	2007	32	0.113	0.928	-1.511	4.079
ZCI	2006	31	-0.192	0.699	-2.775	1.689
ZCI	2005	29	-0.009	1.180	-2.842	4.944
ZCFO	**2005-2010**	**187**	**0.122**	**1.120**	**-1.345**	**7.432**
ZCFO	2010	32	0.435	1.897	-0.511	7.432
ZCFO	2009	31	0.202	1.288	-0.537	5.954
ZCFO	2008	32	0.127	1.307	-0.719	6.026
ZCFO	2007	32	0.214	1.242	-0.750	5.569
ZCFO	2006	31	0.043	0.824	-0.458	3.913
ZCFO	2005	29	0.013	0.870	-1.345	3.476
ZFCF	**2005-2009**	**155**	**0.036**	**0.860**	**-4.544**	**5.420**
ZFCF	2009	31	0.260	1.168	-0.657	5.420
ZFCF	2008	32	0.048	0.782	-1.459	3.294
ZFCF	2007	32	0.131	0.661	-1.324	2.186
ZFCF	2006	31	-0.056	0.329	-0.758	0.786
ZFCF	2005	29	-0.221	1.089	-4.544	2.170
ZSIZE	**2005-5009**	**155**	**-0.019**	**0.846**	**-0.419**	**5.651**
ZSIZE	2009	31	0.016	1.023	-0.418	5.109
ZSIZE	2008	32	-0.077	0.887	-0.419	4.528
ZSIZE	2007	32	0.121	1.127	-0.405	5.651
ZSIZE	2006	31	-0.109	0.451	-0.416	1.089
ZSIZE	2005	29	-0.050	0.534	-0.412	1.792
ZGROWTH	**2005-2009**	**155**	**-0.064**	**0.145**	**-0.585**	**0.693**
ZGROWTH	2009	31	-0.099	0.156	-0.509	0.368
ZGROWTH	2008	32	-0.091	0.128	-0.585	0.133
ZGROWTH	2007	32	-0.064	0.125	-0.247	0.237
ZGROWTH	2006	31	-0.050	0.133	-0.378	0.278
ZGROWTH	2005	29	-0.010	0.172	-0.177	0.693
ZRISK	**2005-2009**	**155**	**0.365**	**0.721**	**-0.895**	**2.528**
ZRISK	2009	31	0.228	0.561	-0.766	1.268
ZRISK	2008	32	0.377	0.785	-0.734	2.528
ZRISK	2007	32	0.322	0.750	-0.605	2.350
ZRISK	2006	31	0.395	0.717	-0.847	1.914
ZRISK	2005	29	0.512	0.787	-0.895	2.495

The difference of unit of variables caused to wide range of beta value in the regression model. Minimizing the difference of the beta value was done by transforming data into standardized value, and the results were shown in Table 4.6.

4.2 Hypothesis Testing for the Predictability of Past Financial Performances

To investigate the answer for research question 1 on "Which factors have ability to predict future firm performance of Thai listed companies in Agro & Food Industry and Technology Industry (earnings, comprehensive income, operating cash flows, and free cash flows)?, the hypotheses of the study were to test the ability of each variable, EARN, CI, CFO and FCF, to predict future earnings before interest and tax and operating cash flows. The statistic used for testing was simple regression since testing only one variable in each model, and the testing was divided into three categories; AGRO, TECH, and Pooled industries (combination of AGRO and TECH: POOL).

H1: Past financial performance has a predictive ability for future firm performance.

The result of regression analysis to forecast future earning as shown in Table 4.7 to 4.12 was divided into three parts for one, two and, three-year-ahead prediction and two sections in predicting future earning and future cash flows.

4.2.1 Predictability of Past Financial Performances for Future Earnings:

The investigation of ability of past financial performances to predict one-year-ahead earnings was tested by hypothesis as follows:

H1.1 Past financial performances have the predictability for one-year-ahead earnings.

This hypothesis was divided into four sub hypotheses as follows:

H1.1.1 $EARN_t$ has the predictive ability for one-year-ahead earnings.

Table 4.7 The predictability of past earnings for one-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	**-0.028**	-1.168	0.244	**0.001**	0.041	0.967	**-0.047**	-1.051	0.295
$ZEARN_t$	**0.830** *	30.132	0.000	**0.928** *	28.151	0.000	**0.783** *	18.118	0.000
Adjusted R^2	**0.725**			**0.807**			**0.680**		
F	**907.953** *		0.000	**792.460** *		0.000	**328.277** *		0.000
Durbin-Watson	**2.229**			**1.479**			**2.554**		

Notes:
1) This table presented predictability for one-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.1.2 CI_t has the predictive ability for one-year-ahead earnings.

Table 4.8 The predictability of past comprehensive income for one-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	-0.025	-0.772	0.441	**-0.049** *	-2.030	0.044	0.020	0.317	0.751
ZCI_t	0.719 *	18.519	0.000	**1.036** *	25.530	0.000	0.591 *	9.956	0.000
Adjusted R^2	0.498			**0.775**			0.389		
F	342.941 *		0.000	**651.785** *		0.000	99.122 *		0.000
Durbin-Watson	1.353			**1.852**			1.397		

Notes:
1) This table presented predictability for one-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.1.3 CFO_t has the predictive ability for one-year-ahead earnings.

Table 4.9 The predictability of past operating cash flows for one-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	-0.027	-0.968	0.334	**0.035**	1.158	0.248	-0.073	-1.447	0.150
$ZCFO_t$	0.726*	23.190	0.000	**0.866***	18.886	0.000	0.678*	15.126	0.000
Adjusted R^2	0.609			**0.653**			0.597		
F	537.755*		0.000	**356.686***		0.000	228.789*		0.000
Durbin-	1.371			**1.803**			1.401		

Notes:
1) This table presented predictability for one-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.1.4 FCF_t has predictive ability for one-year-ahead earnings.

Table 4.10 The predictability of past free cash flows for one-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	-0.029	-0.764	0.445	-0.050*	-	0.249	-0.013*	-	0.847
$ZFCF_t$	0.565*	12.024	0.000	0.499*	8.880	0.000	0.624*	8.085	0.000
Adjusted R^2	0.294			0.292			0.295		
F	144.568*		0.000	78.860*		0.000	65.361*		0.000
Durbin-	1.050			0.784			1.162		

Notes:
1) This table presented predictability for one-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

The research results for one-year-ahead earnings prediction (as shown in Table 4.7 to 4.10) showed that all models were significant at a significance level of 0.05. However, considering the conditions of regression statistic, it was found that there were

some autocorrelation problems of error terms due to the Durbin-Watson values were not in the range of 1.5 to 2.5.

For H1.1 testing, it showed that one-year-ahead earnings predictability of EARN in POOL and AGRO were 72.5 percent and 80.7 percent, respectively (Table 4.7) while the predictability of EARN in TECH was 68.0 percent. For the testing of one-year-ahead earnings predictability of CI (Table 4.8), it revealed that the future earning predictability of CI was 77.5 percent in AGRO, but there was a problem of auto correlation in TECH and pooled industry.

Regarding the analysis of CFO's predictability for one-year-ahead earnings (Table 4.9), the result showed that CFO had the predictability at 65.3 percent and fit for AGRO only. Even though the predictability of CFO was rather high in TECH (59.7 percent) and POOL (60.9 percent), there was an autocorrelation problem affecting the mismatch of regression conditions.

The testing of predictability of FCF revealed that Durbin-Watson values were not in range of 1.5 to 2.5, implying that there were autocorrelation problems (Table 4.10). However, considering the Adjusted R^2, it showed that the ability to predict future earnings was less than other variables.

Due to the testing for the predictability of past financial performance for two-year-ahead earning, hypothesis 1.2 was raised as follows:

H1.2 Past financial performances have the predictability for two-year-ahead earnings.

This hypothesis was divided into four sub hypotheses as follows:

H1.2.1 $EARN_t$ has the predictive ability for two-year-ahead earnings.

Table 4.11 The predictability of past earnings on two-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.000	-0.000	1.000	0.086	1.941	0.054	**-0.056**	-0.964	0.337
$ZEARN_t$	0.752 *	20.856	0.000	1.003 *	14.736	0.000	**0.688** *	15.441	0.000
Adjusted R^2	0.564			0.536			**0.618**		
F	434.959 *		0.000	217.155 *		0.000	**238.423** *		0.000
Durbin-Watson	1.137			1.043			**1.491**		

Notes:
1) This table presented predictability for two-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.2.2 CI_t has the predictive ability for two-year-ahead earnings.

Table 4.12 The predictability of past comprehensive income on two-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.000	0.000	1.000	0.024	0.556	0.579	0.025	0.322	0.748
ZCI_t	0.583 *	13.098	0.000	1.232 *	15.203	0.000	0.462 *	8.156	0.000
Adjusted R^2	0.337			0.552			0.308		
F	171.556 *		0.000	231.117 *		0.000	66.514 *		0.000
Durbin-Watson	0.837			1.028			1.050		

Notes:
1) This table presented predictability for two-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.2.3 CFO_t has the predictive ability for two-year-ahead earnings.

Table 4.13 The predictability of past operating cash flows for on two-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.000	-0.000	1.000	0.209 *	4.793	0.000	-0.069	-1.050	0.296
$ZCFO_t$	0.681 *	17.014	0.000	1.496 *	16.464	0.000	0.592 *	12.566	0.000
Adjusted R^2	0.463			0.591			0.516		
F	289.483 *		0.000	271.054 *		0.000	157.911 *		0.000
Durbin-Watson	0.914			1.052			1.399		

Notes:
1) This table presented predictability for two-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.2.4 FCF_t has the predictive ability for two-year-ahead earnings.

Table 4.14 The predictability of past free cash flows on two-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.000	-0.000	1.000	-0.045	-0.702	0.484	0.027	0.304	0.762
$ZFCF_t$	0.206 *	3.852	0.000	0.010	0.101	0.920	0.270 *	3.881	0.000
Adjusted R^2	0.040			-0.005			0.087		
F	14.840 *		0.000	0.010 *		0.000	15.064 *		0.000
Durbin-Watson	0.666			0.231			1.094		

Notes:
1) This table presented predictability for two-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

According to Table 4.11 to 4.14, the results showed that the overall regression models were significant, but there were autocorrelation problems of error term. Considering the overall results, only EARN had the predictability for two-year-ahead

earnings (Adjusted R^2 = 61.8%) and met the requirement of regression statistic in TECH while the rest had autocorrelation problem for using this linear regression method.

H1.3 Past financial performances have the predictability for three-year-ahead earnings.

This hypothesis aimed to test the predictability of the variables for three-year-ahead earning prediction, and it was divided into four sub hypotheses for each variable, EARN, CI, CFO and FCF as follows.

H1.3.1 $EARN_t$ has the predictive ability for three-year-ahead earnings.

Table 4.15 The predictability of past earnings on three-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**0.000**	0.000	1.000	**0.076***	3.545	0.001	**-0.046**	-0.424	0.672
$ZEARN_t$	**0.698***	16.541	0.000	**0.928***	20.152	0.000	**0.679***	9.438	0.000
Adjusted R^2	**0.485**			**0.694**			**0.447**		
F	**273.615***		0.000	**406.088***		0.000	**89.067***		0.000
Durbin-Watson	**1.473**			**1.507**			**1.505**		

Notes:
1) This table presented predictability for two-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.3.2 CI_t has the predictive ability for three-year-ahead earnings.

Table 4.16 The predictability of past comprehensive income on three-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.000	0.000	1.000	-0.019	-0.780	0.436	0.091	0.717	0.475
ZCI_t	0.510*	10.061	0.000	0.825*	14.585	0.000	0.460*	5.502	0.000
Adjusted R^2	0.257			0.542			0.212		
F	101.220*		0.000	212.716*		0.000	30.271*		0.000
Durbin-Watson	1.160			1.354			1.209		

Notes:
1) This table presented predictability for two-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.3.3 CFO_t has the predictive ability for three-year-ahead earnings.

Table 4.17 The predictability of past operating cash flows on three-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.000	-0.000	1.000	0.037	1.069	0.286	-0.069	-0.681	0.497
$ZCFO_t$	0.701*	16.695	0.000	0.694*	7.960	0.000	0.717*	10.869	0.000
Adjusted R^2	0.490			0.258			0.518		
F	278.731*		0.000	63.366			118.131*		0.000
Durbin-Watson	1.153			0.501			1.322		

Notes:
1) This table presented predictability for two-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression condition presented in bold.

H1.3.4 FCF_t has the predictive ability for three-year-ahead earnings.

Table 4.18 The predictability of past free cash flows on three-year-ahead earnings.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.000	0.000	1.000	-0.084*	-2.538	0.012	0.143	1.025	0.308
$ZFCF_t$	0.272*	4.804	0.000	0.309*	5.266	0.000	0.253*	2.638	0.010
Adjusted R^2	0.071			0.130			0.052		
F	23.083*		0.000	27.727*		0.000	6.959*		0.000
Durbin-Watson	1.103			0.658			1.195		

Notes:
1) This table presented earning predictability for three-year-ahead earnings,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

According to Table 4.15 to 4.18, the regression results showed that only EARN was appropriated to predict three-year-ahead earnings in AGRO, TECH, and POOL. On the other hand, it revealed that past financial performance had the ability to predict three-year-ahead earnings less than in short-term prediction (one-year-ahead prediction). However, some Adjusted R^2 was high value, but the relationships among variables and dependent variable (future earning) might be measured by other statistics.

In conclusion, for one-year-ahead prediction, there were different effects of past financial performance. For AGRO industry, it revealed that the highest ability to predict one-year-ahead earnings was EARN (Adjusted R^2 = 80.7%), CI (Adjusted R^2 = 77.5%), and CFO (Adjusted R^2 = 65.3%), respectively. On the other hand, based on TECH industry, the results showed that only EARN had the predictability at 68.0 percent while EARN and CI had predictability at 72.5 percent in pooled industries.

As for the predictability for two-year-ahead earnings, the results showed that EARN was the best predictor in TECH (Adjusted R^2 = 61.8%). In addition, EARN was also the best predictor in POOL, AGRO, and TECH for three-year-ahead earnings based on consideration of Adjusted R^2 at 48.5 percent, 69.4 percent, and 44.7 percent, respectively.

4.2.2 Predictability of Past Financial Performances Future Cash Flows:

This part aimed to test the ability of past financial performances to predict future cash flows for one, two and three-year-ahead.

H1.4 Past financial performances have the predictability for one-year-ahead cash flows.

This hypothesis was divided into four sub hypotheses as follows:

H1.4.1 $EARN_t$ has the predictive ability for one-year-ahead cash flows.

Table 4.19 The predictability of past earnings on one-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**0.007**	0.210	0.834	**-0.079** *	-2.138	0.034	**0.081**	1.340	0.182
$ZEARN_t$	**0.786** *	19.562	0.000	**0.586** *	10.843	0.000	**0.878** *	14.983	0.000
Adjusted R^2	**0.526**			**0.382**			**0.592**		
F	**382.655** *		0.000	**117.580** *		0.000	**224.502** *		0.000
Durbin-Watson	**1.775**			**1.947**			**1.683**		

Notes:
1) This table presented predictability for one-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future earnings were considered in four variables separately using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.4.2 CI_t has the predictive ability for one-year-ahead cash flows.

Table 4.20 The predictability of past comprehensive income on one-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.008	0.188	0.851	**-0.111** *	-2.971	0.003	0.155	1.912	0.058
ZCI_t	0.612 *	11.928	0.000	**0.648** *	10.334	0.000	0.594 *	7.615	0.000
Adjusted R^2	0.291			**0.359**			0.270		
F	142.280 *		0.000	**106.786** *		0.000	57.982 *		0.000
Durbin-Watson	1.205			**1.995**			1.018		

Notes:
1) This table presented predictability for one-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.4.3 CFO_t has the predictive ability for one-year-ahead cash flows.

Table 4.21 The predictability of past operating cash flows on one-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**0.010**	0.321	0.748	**-0.054**	-1.389	0.166	**0.038**	0.721	0.472
$ZCFO_t$	**0.791** *	22.082	0.000	**0.567** *	9.744	0.000	**0.875** *	18.522	0.000
Adjusted R^2	**0.586**			**0.332**			**0.690**		
F	**487.601** *		0.000	**94.947** *		0.000	**343.059**		0.000
Durbin-Watson	**2.306**			**2.196**			**2.174**		

Notes:
1) This table presented predictability for one-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.4.4 FCF_t has the predictive ability for one-year-ahead cash flows.

Table 4.22 The predictability of past free cash flows on one-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.005	0.117	0.907	-0.118 *	-2.620	0.010	**0.118**	1.482	0.140
$ZFCF_t$	0.512 *	9.189	0.000	0.236 *	4.012	0.000	**0.756** *	8.183	0.000
Adjusted R^2	0.195			0.074			**0.300**		
F	84.447 *		0.000	16.097 *		0.000	**66.956** *		0.000
Durbin-Watson	1.421			1.254			**1.493**		

Notes:
1) This table presented predictability for one-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

The results of hypothesis testing were shown in Table 4.19 to 4.22 which revealed that all regression models were significant at a significance level of 0.05, but some models met the auto correlation problem due to Durbin-Watson values were not in the range of 1.5 to 2.5.

The predictability of EARN for one-year-ahead cash flows was 38.2 percent in AGRO, 52.6 percent in pooled industry, and 59.2 percent in TECH (Table 4.19) while CI had the predictability at 35.9 percent in AGRO (Table 4.20). It also showed that CFO had the predictability at 69.0 percent in TECH, 58.6 percent in POOL, and only 33.2 percent in AGRO (Table 4.21). In addition, FCF had the predictability for one-year-ahead cash flows only in TECH at 41.4 percent (Table 4.22).

By focusing on industry, the results stated that CFO was the best predictor for one-year-ahead cash flows in POOL (Adjusted R^2 = 58.6 percent) and TECH (Adjusted

R^2 = 69.0 percent) while the best predictor in AGRO was EARN which had the predictability at 38.2 percent.

The hypothesis to test the predictability of past financial performance for two-year-ahead cash flows was as follows.

H1.5 Past financial performances have the predictability for two-year-ahead cash flows, divided into four sub hypotheses as follows:

H1.5.1 $EARN_t$ has the predictive ability for two-year-ahead cash flows.

Table 4.23 The predictability of past earnings for two-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.000**	-0.000	1.000	**-0.038**	-0.909	0.364	0.053	0.709	0.479
$ZEARN_t$	**0.684** *	17.14	0.000	**0.695** *	10.688	0.000	0.672 *	11.87	0.000
Adjusted R^2	**0.466**			**0.377**			0.488		
F	**293.833** *		0.000	**114.239** *		0.000	140.963 *		0.000
Durbin-Watson	**1.517**			**1.710**			1.430		

Notes:
1) This table presented predictability for two-year-ahead cash flows.
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.5.2 CI_t has predictive ability for two-year-ahead cash flows.

Table 4.24 The predictability of past comprehensive income for two-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.000	0.000	1.000	**-0.080** *	-1.976	0.050	0.135	1.468	0.144
ZCI_t	0.495	10.41	0.000	**0.871** *	11.308	0.000	0.417 *	6.267	0.000
Adjusted R^2	0.243			**0.404**			0.207		
F	108.436		0.000	**127.867** *		0.000	39.277 *		0.000
Durbin-Watson	1.040			**1.858**			0.967		

Notes:
1) This table presented predictability for two-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.5.3 CFO_t has the predictive ability for two-year-ahead cash flows.

Table 4.25 The predictability of past operating cash flows for two-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.000**	-0.000	1.000	**0.034**	0.747	0.456	**0.014**	0.215	0.830
$ZCFO_t$	**0.729** *	19.48	0.000	**0.961** *	10.218	0.000	**0.697** *	14.78	0.000
Adjusted R^2	**0.531**			**0.356**			**0.597**		
F	**379.526** *		0.000	**104.417** *		0.000	**218.580** *		0.000
Durbin-Watson	**1.933**			**1.799**			**2.172**		

Notes:
1) This table presented predictability for two-year-ahead cash flows.
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.5.4 FCF_t has the predictive ability for two-year-ahead cash flows.

Table 4.26 The predictability of past free cash flows for two-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.000	-0.000	1.000	-0.146 *	-2.802	0.006	0.118	1.253	0.212
$ZFCF_t$	0.268 *****	5.086	0.000	-0.183 *****	-2.383	0.018	0.408 *	5.605	0.000
Adjusted R^2	0.069			0.024			0.171		
F	25.870 *****		0.000	5.679 *****		0.000	31.418 *		0.000
Durbin-Watson	1.110			0.904			1.448		

Notes:
1) This table presented predictability for two-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

The results were shown in Table 4.23 to 4.26 which stated that all models were significant at a significance level of 0.05, but only six models met the regression conditions. EARN, CI, and CFO had the predictability for two-year-ahead cash flows in AGRO at 37.7 percent (Table 4.23), 40.4 percent (Table 4.24), and 35.6 percent (Table 4.25), respectively. EARN and CFO had the predictability at 46.6 percent (Table 4.23) and 53.1 percent (Table 4.25) in POOL, and only CFO had the predictability at 53.1 percent in TECH (Table 4.25). The results revealed that FCF could not be used to predict two-year-ahead cash flows with this statistic method (Table 4.26).

The hypothesis was constructed to test the predictive ability of past financial performance for three-year-ahead cash flows as follows.

H1.6 Past financial performances have the predictability for three-year-ahead cash flows.

H1.6.1 $EARN_t$ has the predictive ability for three-year-ahead cash flows.

Table 4.27 The predictability of past earnings for three-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**0.000**	0.000	1.000	**-0.076**	-2.344	0.020	**0.077**	0.660	0.511
$ZEARN_t$	**0.604 ***	12.85	0.000	**0.457 ***	6.595	0.000	**0.606 ***	7.835	0.000
Adjusted R^2	**0.362**			**0.192**			**0.356**		
F	**165.145 ***		0.000	**43.498 ***		0.000	**61.384 ***		0.000
Durbin-Watson	**1.597**			**1.801**			**1.562**		

Notes:
1) This table presented predictability for three-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.6.2 CI_t has the predictive ability for three-year-ahead cash flows.

Table 4.28 The predictability of past comprehensive income for three-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.000	0.000	1.000	**-0.121 ***	-3.937	0.000	**0.226**	1.627	0.107
ZCI_t	0.290 *	5.151	0.000	**0.415 ***	5.848	0.000	**0.249 ***	2.733	0.007
Adjusted R^2	0.081			**0.156**			**0.056**		
F	26.534 *		0.000	**34.203 ***		0.000	**7.468**		0.000
Durbin-Watson	1.430			**1.796**			**1.467**		

Notes:
1) This table presented predictability for three-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.6.3 CFO_t has the predictive ability for three-year-ahead cash flows.

Table 4.29 The predictability of past operating cash flows for three-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.000**	-0.000	1.000	-0.094 *	-2.589	0.010	**0.006**	0.071	0.944
$ZCFO_t$	**0.759 ***	19.78	0.000	0.343 *	3.794	0.000	**0.792 ***	13.92	0.000
Adjusted R^2	**0.575**			0.070			**0.639**		
F	**391.486 ***		0.000	14.392 *		0.000	**193.796 ***		0.000
Durbin-Watson	**2.046**			1.411			**2.287**		

Notes:
1) This table presented predictability for three-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

H1.6.4 FCF_t has the predictive ability for three-year-ahead cash flows.

Table 4.30 The predictability of past free cash flows for three-year-ahead cash flows.

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**0.000**	0.000	1.000	**-0.143 ***	-4.848	0.000	**0.221**	1.745	0.084
$ZFCF_t$	**0.462 ***	8.838	0.000	**0.351 ***	6.730	0.000	**0.473 ***	5.407	0.000
Adjusted R^2	**0.211**			**0.198**			**0.206**		
F	**78.103 ***		0.000	**45.286 ***		0.000	**29.232 ***		0.000
Durbin-Watson	**1.532**			**1.525**			**1.607**		

Notes:
1) This table presented predictability for three-year-ahead cash flows,
2) Using data during period 2005-2010.
3) Factors influence future cash flows were considered in each industry using simple regression model.
4) Coefficient estimates were reported with t-statistics where "*" implied statistic significant level at 0.05.
5) The models met regression conditions presented in bold.

According to Table 4.27 to 4.30, the results showed that CFO was the best predictor in TECH and POOL at 63.9 percent and 57.5 percent, respectively (Table 4.29) while it revealed that past financial performance had low ability to predict three-

year-ahead cash flows in AGRO. It showed that EARN, CI, and FCF had the ability to predict three-year-ahead cash flows at 19.2 percent (Table 4.27), 15.6 percent (Table 4.28) and 19.8 percent (Table 4.30) in AGRO, respectively. However, the other variables had the relationship with future cash flows but could possibly predict the future cash flows with other statistic method.

For the conclusion of the predictability of past financial performance using regression model, it revealed that EARN was the best predictor for one (38.2 percent) and three-year-ahead cash flows (19.2 percent) in AGRO, and CI was the best predictor for two-year-ahead cash flows (40.4 percent) in AGRO. Even though the results showed the predictability of the past financial performance, the predicted value was stated in low level.

Considering in TECH industry, it showed that CFO had the predictability for one, two and three-year ahead in high value (69.0 percent, 59.7 percent, and 63.9 percent, respectively). In pooled industry, the results were dominated by either AGRO or TECH, but not consistent with any industries.

4.3 Hypothesis Testing for the Effects of Financial and Non-financial Factors

According to research question 2 on "Did the financial and non-financial factors (firm size, growth, market risk and auditor quality) have the effects on future firm performance in terms of future earnings and future cash flows?," the previous research claimed that many condition factors affected the firms' performances. For this study, five variables were used to estimate the future firm performance plus one variable, industry (IND), which was analyzed in pooled industry only to confirm the different

effects on the predictability in each industry. A multiple regression was applied to test the relationship among the variables, and *t* statistic was used to confirm the effect of these variables while F statistic was assigned the fit of model, and Adjusted R^2 was the answer of the predictability of future firm performance. The hypothesis to test the effects of financial and non-financial factors was as follows.

H2 : Financial and non-financial factors have the effects on the predictability of future firm performance.

Financial factors were composed of firm size and firm growth while non-financial factors consisted of market risk, auditor quality (auditor type and audit firm change), and industry.

4.3.1 The Effects of Financial and Non-financial Factors on Future Earnings Prediction

This study had mentioned the effects of control variables on the predictability of past financial performances. Multiple regression analysis was applied for testing the relationship and predictability of model. Four independent variables, which were tested in the first state of this research, were the main variables added with five control variables in the model. There were two hypotheses to test the effects on future earnings predictability and future cash flows predictability and for one, two and three-year-ahead. The hypothesis testing predictability for future earnings was as follows.

H2.1 Financial and non-financial factors have the effects on the predictability for one-year-ahead earnings, divided to four sub-hypotheses.

H2.1.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for one-year-ahead earnings.

Table 4.31 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on one-year-ahead earnings

	$ZEARN_{t+1}$	$ZEARN_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
POOL									
$ZEARN_{t+1}$	1.000	0.852 *	0.748 *	0.006	0.143 *	0.158 *	-0.118 *	-0.061	
$ZEARN_t$		1.000	0.777 *	0.012	0.166 *	0.186 *	-0.095 *	-0.101 *	2.569
$ZSIZE_t$			1.000	-0.011	0.204 *	0.179 *	-0.106 *	-0.054	2.600
$ZGROWTH_t$					-0.012	-0.083	-0.033	0.060	1.016
$ZRISK_t$					1.000	-0.016	0.060 *	-0.411 *	1.262
$BIG4_t$						1.000	-0.151	0.061	1.074
$AUDITC_t$							1.000	-0.029	1.038
IND								1.000	1.227
AGRO									
$ZEARN_{t+1}$	1.000	0.899 *	0.784 *	0.019	0.155 *	0.076	-0.093		
$ZEARN_t$		1.000	0.890 *	0.031	0.177 *	0.093	-0.098		4.929
$ZSIZE_t$			1.000	-.013	0.256 *	0.110	-0.106		5.152
$ZGROWTH_t$				1.000	.041	-0.125 *	-0.028		1.028
$ZRISK_t$					1.000	-0.140 *	-0.008		1.121
$BIG4_t$						1.000	-0.139		1.079
$AUDITC_t$							1.000		1.031
TECH									
$ZEARN_{t+1}$	1.000	0.826 *	0.723 *	-0.022	0.112	0.236 *	-0.143 *		
$ZEARN_t$		1.000	0.710 *	0.001	0.114	0.275 *	-0.101		2.060
$ZSIZE_t$			1.000	0.010	0.155 *	0.251 *	-0.110		2.057
$ZGROWTH_t$				1.000	-0.203 *	0.041	-0.176 *		1.073
$ZRISK_t$					1.000	0.150 *	0.107		1.102
$BIG4_t$						1.000	-0.160 *		1.132
$AUDITC_t$							1.000		1.077

Note: "*" implied statistic significant level at 0.05.

Table 4.32 The effects of financial and non-financial on past earnings predictability for one-year-ahead earnings

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.004**	-0.083	0.934	**0.011**	0.233	0.816	**-0.005**	-0.060	0.952
$ZEARN_t$	**0.669***	15.598	0.000	**1.001***	13.544	0.000	**0.596***	10.146	0.000
$ZSIZE_t$	**0.240***	4.891	0.000	**-0.082**	-1.087	0.279	**0.318***	4.428	0.000
$ZGROWTH_t$	**-0.002**	-0.106	0.915	**-0.007**	-0.420	0.675	**-0.235**	-0.775	0.440
$ZRISK_t$	**-0.008**	-0.217	0.828	**0.004**	0.099	0.921	**-0.001**	-0.018	0.985
$BIG4_t$	**-0.027**	-0.499	0.618	**-0.011**	-0.206	0.837	**-0.029**	-0.290	0.772
$AUDITC_t$	**-0.097**	-1.097	0.273	**-0.019**	-0.216	0.830	**-0.201**	-1.271	0.206
IND	**0.029**	0.561	0.575						
Adjusted R^2	**0.741**			**0.803**			**0.713**		
F	**141.430**		0.000	**129.769**		0.000	**64.619**		0.000
Durbin-Watson	**2.205**			**1.485**			**2.534**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression conditions presented in bold.

H2.1.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for one-year-ahead earnings.

Table 4.33 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on one-year-ahead earnings

	$ZEARN_{t+1}$	**ZCI_t**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZEARN_{t+1}$	1.000	0.707 *	0.748 *	0.006	0.143	.158 *	-.118 *	-.061	
ZCI_t		1.000	0.667 *	0.032	-0.027	.147 *	-.079	-.016	1.912
$ZSIZE_t$			1.000	-0.011	0.204 *	.179 *	-.106 *	-.054	2.026
$ZGROWTH_t$				1.000	-0.012	-.083	-.033	.060	1.017
$ZRISK_t$					1.000	-.016	.060	-.411 *	1.333
$BIG4_t$						1.000	-.151 *	.061	1.068
$AUDITC_t$							1.000	-.029	1.038
IND								1.000	1.221

Table 4.33 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on one-year-ahead earnings (Cont.)

	$ZEARN_{t+1}$	ZCI_t	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
AGRO									
$ZEARN_{t+1}$	1.000	0.881 *	0.784 *	0.019	0.155 *	0.076	-0.093		
ZCI_t		1.000	0.879 *	0.050	0.170 *	0.106	-0.106		4.561
$ZSIZE_t$			1.000	-0.013	0.256 *	0.110	-0.106		4.749
$ZGROWTH_t$				1.000	0.041	-0.125 *	-0.028		1.038
$ZRISK_t$					1.000	-0.140 *	-0.008		1.121
$BIG4_t$						1.000	-0.139		1.078
$AUDITC_t$							1.000		1.031
TECH									
$ZEARN_{t+1}$	1.000	0.627 *	0.723 *	-0.022	0.112	0.236 *	-0.143 *		
ZCI_t		1.000	0.562 *	0.082	-0.155 *	0.183 *	-0.066		1.620
$ZSIZE_t$			1.000	0.010	0.155 *	0.251 *	-0.110		1.648
$ZGROWTH_t$				1.000	-0.203 *	0.041	-0.176 *		1.073
$ZRISK_t$					1.000	0.150 *	0.107		1.208
$BIG4_t$						1.000	-0.160 *		1.121
$AUDITC_t$							1.000		1.080

Note: "*" implied statistic significant level at 0.05.

Table 4.34 The effects of financial and non-financial on past comprehensive income predictability for one-year-ahead earnings

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.005**	-0.075	0.940	**-0.019**	-0.364	0.716	**-0.050**	-0.499	0.619
ZCI_t	**0.397 ***	8.678	0.000	**1.000 ***	11.422	0.000	**0.336 ***	5.451	0.000
$ZSIZE_t$	**0.519 ***	10.121	0.000	**0.040**	0.512	0.609	**0.576 ***	7.532	0.000
$ZGROWTH_t$	**-0.000**	-0.004	0.997	**-0.012**	-0.738	0.462	**-0.365**	-1.012	0.313
$ZRISK_t$	**0.067**	1.520	0.129	**-0.002**	-0.044	0.965	**0.115**	1.498	0.136
$BIG4_t$	**0.024**	0.373	0.709	**-0.035**	-0.599	0.550	**0.050**	0.425	0.671
$AUDITC_t$	**-0.123**	-1.166	0.245	**-0.005**	-0.049	0.961	**-0.280**	-1.488	0.139
IND	**-0.014**	-0.225	0.822						
Adjusted R^2	**0.635**			**0.770**			**0.594**		
F	**86.549 ***		0.000	**106.602 ***		0.000	**38.566 ***		0.000
Durbin-Watson	**1.458**			**1.834**			**1.561**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression conditions presented in bold.

H2.1.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for one-year-ahead earnings.

Table 4.35 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on one-year-ahead earnings

	$ZEARN_{t+1}$	$ZCFO_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
POOL									
$ZEARN_{t+1}$	1.000	0.781 *	0.748 *	0.006	0.143 *	0.158 *	-0.118 *	-0.061	
$ZCFO_t$		1.000	0.807 *	-0.014	0.284 *	0.194 *	-0.069	-0.149 *	3.072
$ZSIZE_t$			1.000	-0.011	0.204 *	0.179 *	-0.106 *	-0.054	2.931
$ZGROWTH_t$				1.000	-0.012	-0.083	-0.033	0.060	1.014
$ZRISK_t$					1.000	-0.016	0.060	-0.411 *	1.290
$BIG4_t$						1.000	-0.151 *	0.061	1.079
$AUDITC_t$							1.000	-0.029	1.039
IND								1.000	1.229
AGRO									
$ZEARN_{t+1}$	1.000	0.809 *	0.784 *	0.019	0.155 *	0.076	-0.093		
$ZCFO_t$		1.000	0.771 *	0.006	0.127 *	0.132 *	-0.055		2.521
$ZSIZE_t$			1.000	-0.013	0.256 *	0.110	-0.106		2.670
$ZGROWTH_t$				1.000	0.041	-0.125 *	-0.028		1.020
$ZRISK_t$					1.000	-0.140 *	-0.008		1.116
$BIG4_t$						1.000	-0.139		1.083
$AUDITC_t$							1.000		1.034
TECH									
$ZEARN_{t+1}$	1.000	0.774 *	0.723 *	-0.022	0.112	0.236 *	-0.143 *		
$ZCFO_t$		1.000	0.846 *	-0.115	0.322 *	0.264 *	-0.089		4.212
$ZSIZE_t$			1.000	0.010	0.155 *	0.251 *	-0.110		3.839
$ZGROWTH_t$				1.000	-0.203 *	0.041	-0.176 *		1.110
$ZRISK_t$					1.000	0.150 *	0.107		1.232
$BIG4_t$						1.000	-0.160 *		1.115
$AUDITC_t$							1.000		1.081

Note: "*" implied statistic significant level at 0.05.

Table 4.36 The effect of financial and non-financial on past operating cash flows predictability for one-year-ahead earnings.

	POOL			**AGRO**			**TECH**		
	B	t	sig	B	t	sig	B	t	sig
(Constant)	0.013	0.212	0.832	**0.077**	1.301	0.195	-0.019	-0.193	0.847
$ZCFO_t$	0.501 *	9.663	0.000	**0.542 ***	8.166	0.000	0.574 *	6.413	0.000
$ZSIZE_t$	0.359 *	5.952	0.000	**0.413 ***	6.266	0.000	0.204	1.805	0.073
$ZGROWTH_t$	0.011	0.435	0.664	**0.008**	0.401	0.689	0.123	0.346	0.730
$ZRISK_t$	-0.084 *	-1.978	0.049	**-0.022**	-0.442	0.659	-0.166 *	-2.207	0.029
$BIG4_t$	-0.021	-0.339	0.735	**-0.063**	-0.956	0.341	0.063	0.556	0.579
$AUDITC_t$	-0.136	-1.320	0.188	**-0.076**	-0.697	0.487	-0.155	-0.850	0.397
IND	0.010	0.173	0.862						
Adjusted R^2	0.650			**0.712**			0.619		
F	92.448 *		0.000	**78.707 ***		0.000	42.624 *		0.000
Durbin-Watson	1.380			**1.696**			1.405		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression conditions presented in bold.

H2.1.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for one-year-ahead earnings.

Table 4.37 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on one-year-ahead earnings

	$ZEARN_{t+1}$	**$ZFCF_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZEARN_{t+1}$	1.000	0.545 *	0.748 *	0.006	0.143 *	0.158 *	-0.118 *	-0.061	
$ZFCF_t$		1.000	0.544 *	-0.031	0.094 *	0.161 *	-0.034	-0.076	1.441
$ZSIZE_t$			1.000	-0.011	0.204 *	0.179 *	-0.106 *	-0.054	1.512
$ZGROWTH_t$				1.000	-0.012	-0.083	-0.033	0.060	1.014
$ZRISK_t$					1.000	-0.016	0.060	-0.411 *	1.264
$BIG4_t$						1.000	-0.151 *	0.061	1.074
$AUDITC_t$							1.000	-0.029	1.040
IND								1.000	1.220

Table 4.37 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on one-year-ahead earnings (Cont.)

	$ZEARN_{t+1}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
AGRO									
$ZEARN_{t+1}$	1.000	0.544 *	0.784 *	0.019	0.155 *	0.076	-0.093		
$ZFCF_t$		1.000	0.432 *	-0.019	-0.020	0.162 *	-0.017		1.274
$ZSIZE_t$			1.000	-0.013	0.256 *	0.110	-0.106		1.370
$ZGROWTH_t$				1.000	0.041	-0.125 *	-0.028		1.019
$ZRISK_t$					1.000	-0.140 *	-0.008		1.124
$BIG4_t$						1.000	-0.139 *		1.091
$AUDITC_t$							1.000		1.033
TECH									
$ZEARN_{t+1}$	1.000	0.547 *	0.723 *	-0.022	0.112	0.236 *	-0.143 *		
$ZFCF_t$		1.000	0.640 *	-0.219 *	0.147 *	0.171 *	-0.056		1.855
$ZSIZE_t$			1.000	.010	0.155 *	0.251 *	-0.110		1.840
$ZGROWTH_t$				1.000	-0.203 *	0.041	-0.176 *		1.170
$ZRISK_t$					1.000	0.150 *	0.107		1.102
$BIG4_t$						1.000	-0.160 *		1.111
$AUDITC_t$							1.000		1.078

Note: "*" implied statistic significant level at 0.05.

Table 4.38 The effects of financial and non-financial on past free cash flows predictability for one-year-ahead earnings

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.019	0.284	0.776	0.049	0.761	0.447	-0.041	-0.372	0.711
$ZFCF_t$	0.202 *	4.647	0.000	0.235 *	5.331	0.000	0.159	1.841	0.068
$ZSIZE_t$	0.705 *	14.840	0.000	0.705 *	13.737	0.000	0.715 *	8.170	0.000
$ZGROWTH_t$	0.015	0.561	0.575	0.013	0.628	0.531	-0.078	-0.191	0.849
$ZRISK_t$	-0.012	-0.255	0.799	-0.026	-0.485	0.628	-0.009	-0.119	0.905
$BIG4_t$	0.018	0.261	0.795	-0.070	-0.966	0.335	0.106	0.845	0.400
$AUDITC_t$	-0.131	-1.161	0.247	-0.059	-0.498	0.619	-0.214	-1.048	0.296
IND	-0.032	-0.493	0.622						
Adjusted R^2	0.580			0.659			0.524		
F	69.001 *		0.000	61.969 *		0.000	29.199 *		0.000
Durbin-Watson	1.177			0.936			1.323		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression conditions presented in bold.

According to Table 4.31, 4.33, 4.35, and 4.37, testing for the relationships among variables showed that dependent and independent variables had positive relationship at high level while financial and non-financial factors related to future financial performance at low level except SIZE. Considering multicollinearity, if VIF value was not greater than ten, it implied that there was no multicollinearity between independent variables.

The results of regression statistic testing for one-year-ahead earnings prediction were shown in Table 4.32, 4.34, 4.36, and 4.38. There were autocorrelation problems in some models, so the results from linear regression that should be reliable were as follows. EARN and CI were suitable for all three categories (AGRO, TECH and pooled Industry) at the highest predictability of each industry. On the other hand, CFO had the predictability for one-year-ahead earnings only in AGRO.

Considering industry, it showed that EARN, CI, and CFO had the predictability ranking for AGRO industry at 80.3 percent (Table 4.32), 77.0 percent (Table 4.34), and 71.2 percent (Table 4.36), respectively. As for TECH industry, EARN and CI had the predictability ranking at 71.3 percent (Table 4.32) and 59.4 percent (Table 4.34), respectively. However, in pooled industry, it revealed that only EARN and CI could be good predictors for one-year-ahead earnings with linear regression statistic method at 74.1 percent (Table 4.32) and 63.5 percent (Table 4.34), respectively.

Regarding the testing of financial and non-financial factors, the results showed that in AGRO industry there was no significant effects on the prediction model with EARN and CI predictors. The results also revealed that SIZE and RISK had the effects on the model with CFO predictor. Considering TECH industry, the results revealed that

only SIZE had a significant effect on the prediction model with EARN and CI predictors. As for pooled industry, the results were consistent with TECH industry for EARN and CI predictors.

The hypothesis testing for the effect of financial and non-financial factors on the predictability of past financial performance for two-year-ahead earning was shown as follows.

H2.2 Financial and non-financial factors have the effects on the predictability for two-year-ahead earnings, divided to four sub-hypotheses.

H2.2.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for two-year-ahead earnings.

Table 4.39 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on two-year-ahead earnings

	$ZEARN_{t+2}$	**$ZEARN_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZEARN_{t+2}$	1.000	0.752 *	0.639 *	0.013	0.116 *	0.146 *	-0.061	-0.052	
$ZEARN_t$		1.000	0.837 *	0.018	0.170 *	0.183 *	-0.080	-0.148 *	3.376
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	3.379
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.299
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.019
$BIG4_t$						1.000	-0.163 *	0.048	1.080
$AUDITC_t$							1.000	-0.010	1.033
IND								1.000	1.299
				AGRO					
$ZEARN_{t+2}$	1.000	0.734 *	0.641 *	0.023	0.131 *	0.066	-0.090		
$ZEARN_t$		1.000	0.852 *	0.054	0.178 *	0.102	-0.105		3.718
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		3.823
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.102
$ZRISK_t$					1.000	-0.153 *	-0.014		1.035
$BIG4_t$						1.000	-0.151 *		1.088
$AUDITC_t$							1.000		1.035

Table 4.39 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on two-year-ahead earnings (Cont.)

	$ZEARN_{t+2}$	$ZEARN_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				TECH					
$ZEARN_{t+2}$	1.000	0.788 *	0.677 *	0.000	0.087	0.226 *	-0.036		
$ZEARN_t$		1.000	0.831 *	0.002	0.091	0.261 *	-0.075		3.293
$ZSIZE_t$			1.000	-0.026	0.097	0.235 *	-0.038		3.248
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.062
$ZRISK_t$					1.000	0.210 *	0.022		1.048
$BIG4_t$						1.000	-0.176 *		1.152
$AUDITC_t$							1.000		1.073

Note: "*" implied statistic significant level at 0.05.

Table 4.40 The effects of financial and non-financial on past earnings predictability for two-year-ahead earnings

	Pooled Industry			**Agro & Food Industry**			**Technology Industry**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.084	-0.965	0.335	0.116	1.184	0.238	**-0.113**	-0.932	0.353
$ZEARN_t$	0.727*	10.926	0.000	0.939*	7.068	0.000	**0.633***	7.727	0.000
$ZSIZE_t$	0.039	0.579	0.563	0.092	0.584	0.560	**0.058**	0.742	0.459
$ZGROWTH_t$	0.018	0.440	0.660	-0.008	-0.133	0.895	**0.010**	0.169	0.866
$ZRISK_t$	-0.003	-0.090	0.928	-0.010	-0.297	0.766	**0.059**	0.125	0.901
$BIG4_t$	0.006	0.065	0.949	-0.032	-0.290	0.772	**0.061**	0.425	0.671
$AUDITC_t$	-0.001	-0.008	0.994	-0.048	-0.276	0.783	**0.114**	0.489	0.626
IND	0.143	1.717	0.087						
Adjusted R^2	0.561			0.525			**0.607**		
F	62.127*		0.000	35.428*		0.000	**38.831***		0.000
Durbin-Watson	1.146			1.007			**1.476**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.2.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for two-year-ahead earnings.

Table 4.41 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on two-year-ahead earnings

	$ZEARN_{t+2}$	**ZCI_t**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZEARN_{t+2}$	1.000	0.583 *	0.639 *	0.013	0.116 *	0.146 *	-0.061	-0.052	
ZCI_t		1.000	0.770 *	0.038	-0.021	0.137 *	-0.049	-0.064	2.663
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	2.788
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.387
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.021
$BIG4_t$						1.000	-0.163 *	0.048	1.073
$AUDITC_t$							1.000	-0.010	1.031
IND								1.000	1.300
				AGRO					
$ZEARN_{t+2}$	1.000	0.744	0.641	0.023	0.131 *	0.066	-0.090		
ZCI_t		1.000	0.849	0.087	0.181 *	0.112	-0.119		3.723
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		3.782
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.101
$ZRISK_t$					1.000	-0.153 *	-0.014		1.055
$BIG4_t$						1.000	-0.151 *		1.090
$AUDITC_t$							1.000		1.036
				TECH					
$ZEARN_{t+2}$	1.000	0.559 *	0.635 *	0.000	0.087	0.226 *	-0.036		
ZCI_t		1.000	0.541 *	0.096	-0.141 *	0.172 *	-0.024		1.544
$ZSIZE_t$			1.000	0.038	0.163 *	0.371 *	-0.112		1.690
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.055
$ZRISK_t$					1.000	0.210 *	0.022		1.155
$BIG4_t$						1.000	-0.176 *		1.226
$AUDITC_t$							1.000		1.078

Note: "*" implied statistic significant level at 0.05.

Table 4.42 The effects of financial and non-financial on past comprehensive income predictability for two-year-ahead earnings

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.125	-1.254	0.211	0.068	0.709	0.479	-0.177	-1.235	0.219
ZCI_t	0.238 *	3.508	0.001	1.209 *	7.652	0.000	0.106	1.269	0.206
$ZSIZE_t$	0.448 *	6.464	0.000	0.040	0.262	0.793	0.473 *	5.604	0.000
$ZGROWTH_t$	0.066	1.355	0.176	-0.012	-0.191	0.849	0.041	0.562	0.575
$ZRISK_t$	0.009	0.216	0.829	-0.028	-0.853	0.395	0.081	0.143	0.887
$BIG4_t$	0.073	0.733	0.464	-0.054	-0.509	0.612	0.166	0.988	0.325
$AUDITC_t$	-0.078	-0.480	0.632	-0.019	-0.109	0.913	0.002	0.007	0.995
IND	0.135	1.417	0.157						
Adjusted R^2	0.423			0.542			0.447		
F	36.042 *		0.000	37.870 *		0.000	20.788 *		0.000
Durbin-Watson	0.912			1.013			1.302		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.2.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for two-year-ahead earnings.

Table 4.43 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on two-year-ahead earnings

	$ZEARN_{t+2}$	**$ZCFO_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZEARN_{t+2}$	1.000	0.681 *	0.639 *	0.013	0.116 *	0.146 *	-0.061	-0.052	
$ZCFO_t$		1.000	0.524 *	-0.010	0.319 *	0.186 *	-0.061	-0.192 *	1.505
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	1.400
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.373
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.015
$BIG4_t$						1.000	-0.163 *	0.048	1.089
$AUDITC_t$							1.000	-0.010	1.031
IND								1.000	1.299

Table 4.43 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on two-year-ahead earnings (Cont.)

	$ZEARN_{t+2}$	$ZCFO_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				AGRO					
$ZEARN_{t+2}$	1.000	0.770	0.641	0.023	0.131 *	0.066	-0.090		
$ZCFO_t$		1.000	0.664	0.031	0.153 *	0.177 *	-0.061		1.836
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		1.871
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.099
$ZRISK_t$					1.000	-0.153 *	-0.014		1.025
$BIG4_t$						1.000	-0.151 *		1.115
$AUDITC_t$							1.000		1.036
				TECH					
$ZEARN_{t+2}$	1.000	0.721 *	0.677 *	0.000	0.087	0.226 *	-0.036		
$ZCFO_t$		1.000	0.485 *	-0.139 *	0.315 *	0.241 *	-0.077		1.489
$ZSIZE_t$			1.000	-0.026	0.097	0.235 *	-0.038		1.348
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.154
$ZRISK_t$					1.000	0.210 *	0.022		1.064
$BIG4_t$						1.000	-0.176 *		1.145
$AUDITC_t$							1.000		1.078

Note: "*" implied statistic significant level at 0.05.

Table 4.44 The effects of financial and non-financial on past operating cash flows predictability for two-year-ahead earnings

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.045	-0.530	0.597	0.343 *	3.792	0.000	**-0.064**	-0.574	0.567
$ZCFO_t$	0.518 *	11.973	0.000	1.228 *	10.324	0.000	**0.469 ***	9.889	0.000
$ZSIZE_t$	0.400 *	9.580	0.000	0.376 *	3.801	0.000	**0.345 ***	7.431	0.000
$ZGROWTH_t$	-0.092	-2.217	0.027	-0.042	-0.739	0.461	**-0.143 ***	-2.581	0.011
$ZRISK_t$	0.016 *	0.460	0.646	-0.004	-0.125	0.901	**0.755 ***	1.738	0.084
$BIG4_t$	-0.045	-0.524	0.600	-0.171	-1.736	0.084	**0.080**	0.615	0.540
$AUDITC_t$	-0.035	-0.251	0.802	-0.135	-0.856	0.393	**0.204**	0.953	0.342
IND	0.145	1.792	0.074						
Adjusted R^2	0.583			0.618			**0.670**		
F	67.966 *		0.000	51.508 *		0.000	**50.654 ***		0.000
Durbin-Watson	1.066			0.921			**1.753**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.2.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for two-year-ahead earnings.

Table 4.45 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on two-year-ahead earnings

	$ZEARN_{t+2}$	**$ZFCF_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZEARN_{t+2}$	1.000	0.206 *	0.639 *	0.013	0.116 *	0.146 *	-0.061	-0.052	
$ZFCF_t$		1.000	0.023	-0.031	0.108 *	0.136 *	-0.012	-0.102 *	1.037
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	1.081
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.305
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.015
$BIG4_t$						1.000	-0.163 *	0.048	1.095
$AUDITC_t$							1.000	-0.010	1.031
IND								1.000	1.305
				AGRO					
$ZEARN_{t+2}$	1.000	0.007	0.641	0.023	0.131 *	0.066	-0.090		
$ZFCF_t$		1.000	-0.152	-0.014	-0.099	0.193 *	0.017		1.074
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		1.122
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.100
$ZRISK_t$					1.000	-0.153 *	-0.014		1.021
$BIG4_t$						1.000	-0.151 *		1.136
$AUDITC_t$							1.000		1.036
				TECH					
$ZEARN_{t+2}$	1.000	0.306 *	0.677 *	0.000	0.087	0.226 *	-0.036		
$ZFCF_t$		1.000	0.049	-0.259 *	0.147 *	0.120	-0.032		1.103
$ZSIZE_t$			1.000	-0.026	0.097	0.235 *	-0.038		1.061
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.074
$ZRISK_t$					1.000	0.210 *	0.022		1.118
$BIG4_t$						1.000	-0.176 *		1.145
$AUDITC_t$							1.000		1.075

Note: "*" implied statistic significant level at 0.05.

Table 4.46 The effects of financial and non-financial on past free cash flows predictability for two-year-ahead earnings

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.092	-0.937	0.350	0.168	1.479	0.141	**-0.113**	-0.850	0.397
$ZFCF_t$	0.198 *	4.756	0.000	0.146	1.935	0.054	**0.262 ***	4.973	0.000
$ZSIZE_t$	0.644 *	15.138	0.000	1.064 *	11.136	0.000	**0.553 ***	11.198	0.000
$ZGROWTH_t$	0.008	0.180	0.857	-0.028	-0.399	0.690	**-0.022**	-0.346	0.730
$ZRISK_t$	0.023	0.563	0.574	0.017	0.451	0.653	**0.869**	1.627	0.106
$BIG4_t$	0.013	0.132	0.895	-0.063	-0.506	0.613	**0.123**	0.791	0.430
$AUDITC_t$	-0.086	-0.535	0.593	-0.088	-0.445	0.657	**0.106**	0.414	0.679
IND	0.158	1.682	0.093						
Adjusted R^2	0.440			0.406			**0.524**		
F	38.554 *		0.000	22.303 *		0.000	**27.967 ***		0.000
Durbin-Watson	0.929			0.526			**1.570**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

The results of correlation analysis and VIF value were shown in Table 4.39, 4.41, 4.43, and 4.45 revealing that there was no multicollinearity among independent variables. According to Table 4.40, 4.42, 4.44, and 4.46, the regression models with no autocorrelation problem were the models to predict two-year-ahead earnings with EARN, CFO, and FCF in TECH Industry. The findings showed that financial and non-financial factors had no significant effect on the predictability of EARN. On the other hand, SIZE had a significant effect on the model with CFO and FCF predictors while GROWTH and RISK had the significant effects on the model with CFO predictor.

The hypothesis testing for the effect of financial and non-financial factors on the predictability of past financial performance for three-year-ahead earning was as follows.

H2.3 Financial and non-financial factors have the effects on the predictability for three-year-ahead earnings, divided to four sub hypothesis

H2.3.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for three-year-ahead earnings.

Table 4.47 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on three-year-ahead earnings

	$ZEARN_{t+2}$	$ZEARN_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZEARN_{t+2}$	1.000	0.698 *	0.697 *	0.015	0.156 *	0.107 *	-0.083	-0.131 *	
$ZEARN_t$		1.000	0.874 *	0.014	0.197 *	0.150 *	-0.097 *	-0.246 *	4.313
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	4.262
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.003
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.357
$BIG4_t$						1.000	-0.167 *	0.016	1.055
$AUDITC_t$							1.000	0.054	1.038
IND								1.000	1.386
				AGRO					
$ZEARN_{t+2}$	1.000	0.834 *	0.672 *	0.042	0.148 *	-0.009	-0.101		
$ZEARN_t$		1.000	0.761 *	0.081	0.145 *	0.048	-0.123 *		2.386
$ZSIZE_t$			1.000	0.110	0.213 *	0.053	-0.115		2.464
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.015
$ZRISK_t$					1.000	-0.130 *	0.018		1.072
$BIG4_t$						1.000	-0.109		1.035
$AUDITC_t$							1.000		1.028
				TECH					
$ZEARN_{t+2}$	1.000	0.672 *	0.697 *	-0.001	0.098	0.195 *	-0.090		
$ZEARN_t$		1.000	0.869 *	-0.034	0.078	0.249 *	-0.101		4.166
$ZSIZE_t$			1.000	-0.039	0.086	0.221 *	-0.077		4.107
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.025
$ZRISK_t$					1.000	0.264 *	-0.038		1.083
$BIG4_t$						1.000	-0.290 *		1.246
$AUDITC_t$							1.000		1.102

Note: "*" implied statistic significant level at 0.05.

Table 4.48 The effects of financial and non-financial on past earnings predictability for three-year-ahead earnings

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.065	-0.616	0.538	**0.119** *	2.734	0.007	-0.117	-0.509	0.612
$ZEARN_t$	0.386 *	4.514	0.000	**1.120** *	12.933	0.000	0.267	1.870	0.064
$ZSIZE_t$	0.367 *	4.317	0.000	**-0.224** *	-2.620	0.010	0.464 *	3.286	0.001
$ZGROWTH_t$	0.009	0.228	0.820	**-0.010**	-0.605	0.546	0.065	0.433	0.666
$ZRISK_t$	0.037	0.771	0.442	**0.029**	1.034	0.303	0.051	0.508	0.613
$BIG4_t$	-0.018	-0.183	0.855	**-0.044**	-0.920	0.359	0.053	0.194	0.847
$AUDITC_t$	-0.091	-0.524	0.600	**-0.000**	-0.004	0.996	-0.148	-0.285	0.776
IND	0.137	1.373	0.171						
Adjusted R^2	0.511			**0.700**			0.478		
F	44.139 *		0.000	**70.636** *		0.000	17.659 *		0.000
Durbin-Watson	1.396			**1.640**			1.440		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.3.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for three-year-ahead earnings.

Table 4.49 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on three-year-ahead earnings

	$ZEARN_{t+3}$	**$ZCFO_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZEARN_{t+3}$	1.000	0.510 *	0.697 *	0.015	0.156 *	0.107 *	-0.083	-0.131 *	
ZCI_t		1.000	0.766 *	0.056	-0.014	0.107 *	-0.076	-0.129 *	2.655
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	2.770
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.008
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.467
$BIG4_t$						1.000	-0.167 *	0.016	1.051
$AUDITC_t$							1.000	0.054	1.036
IND								1.000	1.378

Table 4.49 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on three-year-ahead earnings (Cont.)

	$ZEARN_{t+3}$	$ZCFO_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				AGRO					
$ZEARN_{t+3}$	1.000	0.738 *	0.652 *	0.042	0.148 *	-0.009	-0.101		
ZCI_t		1.000	0.843 *	0.099	0.138 *	0.065	-0.122 *		3.558
$ZSIZE_t$			1.000	0.057	0.229 *	0.058	-0.083		3.637
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.014
$ZRISK_t$					1.000	-0.130 *	0.018		1.091
$BIG4_t$						1.000	-0.109		1.037
$AUDITC_t$							1.000		1.028
				TECH					
$ZEARN_{t+3}$	1.000	0.468 *	0.697 *	-0.001	0.098	0.195 *	-0.090		
ZCI_t		1.000	0.753 *	0.063	-0.169 *	0.158 *	-0.069		2.698
$ZSIZE_t$			1.000	-0.039	0.086	0.221 *	-0.077		2.622
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.040
$ZRISK_t$					1.000	0.264 *	-0.038		1.242
$BIG4_t$						1.000	-0.290 *		1.243
$AUDITC_t$							1.000		1.101

Note: "*" implied statistic significant level at 0.05.

Table 4.50 The effects of financial and non-financial on past comprehensive income predictability for three-year-ahead earnings

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.051	-0.469	0.639	0.048	0.891	0.374	**-0.138**	**-0.595**	**0.553**
ZCI_t	-0.058	-0.834	0.405	0.739 *	6.891	0.000	**-0.138**	-1.220	0.225
$ZSIZE_t$	0.743 *	10.497	0.000	0.099	0.938	0.350	**0.800 ***	7.017	0.000
$ZGROWTH_t$	0.015	0.352	0.725	-0.011	-0.511	0.610	**0.090**	0.587	0.558
$ZRISK_t$	0.020	0.392	0.695	0.019	0.548	0.584	**-0.001**	-0.007	0.995
$BIG4_t$	0.009	0.087	0.931	-0.062	-1.057	0.292	**0.137**	0.502	0.616
$AUDITC_t$	-0.137	-0.763	0.446	-0.036	-0.379	0.706	**-0.180**	-0.344	0.731
IND	0.085	0.828	0.409						
Adjusted R^2	0.477			0.537			**0.468**		
F	38.644 *		0.000	35.619 *		0.000	**17.003 ***		0.000
Durbin-Watson	1.345			1.317			**1.488**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.3.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for three-year-ahead earnings.

Table 4.51 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on three-year-ahead earnings

	$ZEARN_{t+3}$	$ZCFO_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZEARN_{t+3}$	1.000	0.701 *	0.697 *	0.015	0.156 *	0.107 *	-0.083	-0.131 *	
$ZCFO_t$		1.000	0.477 *	-0.085	0.360 *	0.161 *	-0.062	-0.258 *	1.459
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	1.326
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.012
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.445
$BIG4_t$						1.000	-0.167 *	0.016	1.064
$AUDITC_t$							1.000	0.054	1.035
IND								1.000	1.374
				AGRO					
$ZEARN_{t+3}$	1.000	0.512 *	0.652 *	0.042 *	0.148 *	-0.009	-0.101		
$ZCFO_t$		1.000	0.501 *	-0.076	0.077	0.140 *	-0.036		1.382
$ZSIZE_t$			1.000	0.057	0.229 *	0.058	-0.083		1.432
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.022
$ZRISK_t$					1.000	-0.130 *	0.018		1.081
$BIG4_t$						1.000	-0.109		1.055
$AUDITC_t$							1.000		1.019
				TECH					
$ZEARN_{t+3}$	1.000	0.723 *	0.697 *	-0.001 *	0.098	0.195 *	-0.090		
$ZCFO_t$		1.000	0.440 *	-0.173	0.358 *	0.233 *	-0.081		1.461
$ZSIZE_t$			1.000	-0.039 *	0.086	0.221 *	-0.077		1.283
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.048
$ZRISK_t$					1.000	0.264 *	-0.038		1.213
$BIG4_t$						1.000	-0.290 *		1.235
$AUDITC_t$							1.000		1.102

Note: "*" implied statistic significant level at 0.05.

Table 4.52 The effects of financial and non-financial on past operating cash flows predictability for three-year-ahead earnings

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**0.005**	0.060	0.953	0.151	2.486	0.014	**-0.043**	-0.256	0.799
$ZCFO_t$	**0.536 ***	13.276	0.000	0.360 *	4.125	0.000	**0.587 ***	9.569	0.000
$ZSIZE_t$	**0.482 ***	12.529	0.000	0.561 *	7.882	0.000	**0.455 ***	7.794	0.000
$ZGROWTH_t$	**0.055**	1.639	0.102	0.015	0.639	0.524	**0.224 ***	1.998	0.048
$ZRISK_t$	**-0.100 ***	-2.491	0.013	0.000	0.002	0.999	**-0.199 ***	-2.544	0.012
$BIG4_t$	**-0.111**	-1.357	0.176	-0.095	-1.493	0.137	**0.016**	0.082	0.935
$AUDITC_t$	**-0.113**	-0.803	0.423	-0.104	-1.028	0.305	**-0.047**	-0.124	0.902
IND	**0.142**	1.758	0.080						
Adjusted R^2	**0.677**			0.463			**0.714**		
F	**87.660 ***		0.000	26.713 *		0.000	**46.457 ***		0.000
Durbin-Watson	**1.450**			0.760			**1.791**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.3.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for three-year-ahead earnings.

Table 4.53 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on three-year-ahead earnings

	$ZEARN_{t+3}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZEARN_{t+3}$	1.000	0.272 *	0.697 *	0.015	0.156 *	0.107 *	-0.083	-0.131 *	
$ZFCF_t$		1.000	0.013	-0.157 *	0.104 *	0.179 *	-0.033	-0.076	1.073
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	1.092
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.029
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.362
$BIG4_t$						1.000	-0.167 *	0.016	1.086
$AUDITC_t$							1.000	0.054	1.035
IND								1.000	1.374

Table 4.53 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on three-year-ahead earnings (Cont.)

	$ZEARN_{t+3}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				AGRO					
$ZEARN_{t+3}$	1.000	0.367 *	0.652 *	0.042 *	0.148 *	-0.009	-0.101		
$ZFFCF_t$		1.000	0.404 *	-0.115	-0.049	0.359 *	-0.011		1.455
$ZSIZE_t$			1.000	0.057	0.229 *	0.058	-0.083		1.334
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.040
$ZRISK_t$					1.000	-0.130 *	0.018		1.096
$BIG4_t$						1.000	-0.109		1.200
$AUDITC_t$							1.000		1.024
				TECH					
$ZEARN_{t+3}$	1.000	0.246 *	0.697 *	-0.001 *	0.098	0.195 *	-0.090		
$ZFFCF_t$		1.000	-0.080 *	-0.292	0.132	0.100	-0.051		1.127
$ZSIZE_t$			1.000	-0.039 *	0.086	0.221 *	-0.077		1.068
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.116
$ZRISK_t$					1.000	0.264 *	-0.038		1.094
$BIG4_t$						1.000	-0.290 *		1.235
$AUDITC_t$							1.000		1.104

Note: "*" implied statistic significant level at 0.05.

Table 4.54 The effects of financial and non-financial on past free cash flows predictability for three-year-ahead earnings

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	0.020	0.199	0.843	0.129 *	2.049	0.042	**-0.113**	-0.541	0.590
$ZFCF_t$	0.283 *	6.926	0.000	0.151 *	2.637	0.009	**0.349 ***	5.083	0.000
$ZSIZE_t$	0.708 *	17.207	0.000	0.626 *	8.862	0.000	**0.731 ***	11.168	0.000
$ZGROWTH_t$	0.056	1.411	0.159	0.014	0.590	0.556	**0.274**	1.920	0.058
$ZRISK_t$	0.011	0.249	0.803	0.008	0.204	0.839	**0.000**	0.004	0.997
$BIG4_t$	-0.113	-1.161	0.247	-0.129	-1.843	0.067	**0.045**	0.182	0.856
$AUDITC_t$	-0.127	-0.766	0.444	-0.115	-1.105	0.271	**-0.050**	-0.106	0.916
IND	0.121	1.277	0.203						
Adjusted R^2	0.552			0.433			**0.569**		
F	51.843 *		0.000	23.771 *		0.000	**24.964 ***		0.000
Durbin-Watson	1.329			0.944			**1.453**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

According to Table 4.47, 4.49, 4.51, and 4.53, the VIF value showed that there was no multicollinearity among independent variables. The results of regression statistic method (Table 4.48, 4.50, 4.52, and 4.54) showed that only EARN as a predictor had no autocorrelation problem in AGRO industry meaning that the others were not suitable based on linear regression method. Under linear regression method, EARN had the predictability for three-year-ahead earnings at 70.0 percent in AGRO industry (Table 4.48). The suitable predictor in pooled industry and TECH industry was CFO which had the capability to predict at 71.4 percent and 67.7 percent, respectively (Table 4.52). Considering the effects of financial and non-financial factors, it showed that SIZE had a significant effect on every model which met regression conditions. Meanwhile, RISK and GROWTH had the significant effects on the predictability of CFO in TECH industry.

4.3.2 The Effects of Financial and Non-financial Factors on Future Cash Flows Prediction.

This part mentioned on the effects of financial and non-financial factors on the predictability of past financial performances on future cash flows. The hypothesis to test the effects on the predictability for one, two and three-year-ahead cash flows was as follows.

H2.4 Financial and non-financial factors have the effects on the predictability for one-year-ahead cash flows, divided to form sub hypothesis.

H2.4.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for one-year-ahead cash flows.

Table 4.55 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on one-year-ahead cash flows

	$ZCFO_{t+1}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZCFO_{t+1}$	1.000	0.726 *	0.679 *	0.013	0.240 *	0.197 *	-0.069	-0.152	
$ZEARN_t$		1.000	0.777 *	0.012	0.166 *	0.186 *	-0.095 *	-0.101	2.569
$ZSIZE_t$			1.000	-0.011	0.204 *	0.179 *	-0.106 *	-0.054	2.600
$ZGROWTH_t$				1.000	-0.012	-0.083	-0.033	0.060	1.016
$ZRISK_t$					1.000	-0.016	0.060	-0.411	1.262
$BIG4_t$						1.000	-0.151 *	0.061	1.074
$AUDITC_t$							1.000	-0.029	1.038
IND								1.000	1.227
				AGRO					
$ZCFO_{t+1}$	1.000	0.620 *	0.568 *	0.049	0.120 *	0.152 *	-0.062		
$ZEARN_t$		1.000	0.890 *	0.031	0.177 *	0.093	-0.098		4.929
$ZSIZE_t$			1.000	-0.013	0.256 *	0.110	-0.106		5.152
$ZGROWTH_t$				1.000	0.041	-0.125 *	-0.028		1.028
$ZRISK_t$					1.000	-0.140 *	-0.008		1.121
$BIG4_t$						1.000	-0.139 *		1.079
$AUDITC_t$							1.000		1.031
				TECH					
$ZCFO_{t+1}$	1.000	0.771 *	0.756 *	-0.030	0.244	0.257 *	-0.086		
$ZEARN_t$		1.000	0.710 *	0.001	0.114	0.275 *	-0.101		2.060
$ZSIZE_t$			1.000	0.010	0.155	0.251 *	-0.110		2.057
$ZGROWTH_t$				1.000	-0.203	0.041	-0.176 *		1.073
$ZRISK_t$					1.000	0.150 *	0.107		1.102
$BIG4_t$						1.000	-0.160 *		1.132
$AUDITC_t$							1.000		1.077

Note: "*" implied statistic significant level at 0.05.

Table 4.56 The effects of financial and non-financial on past earnings predictability for one-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
Constant	**-0.024**	-0.317	0.752	**-0.197 ***	-2.513	0.013	**0.026**	0.246	0.806
$ZEARN_t$	**0.522 ***	8.497	0.000	**0.520 ***	4.320	0.000	**0.535 ***	7.253	0.000
$ZSIZE_t$	**0.336 ***	4.791	0.000	**0.060**	0.489	0.625	**0.558 ***	6.185	0.000
$ZGROWTH_t$	**0.018**	0.591	0.555	**0.020**	0.783	0.435	**-0.087**	-0.228	0.820
$ZRISK_t$	**0.104 ***	2.003	0.046	**0.022**	0.326	0.745	**0.206 ***	2.665	0.009
$BIG4_t$	**0.140**	1.808	0.071	**0.156**	1.759	0.080	**0.018**	0.149	0.882
$AUDITC_t$	**0.034**	0.267	0.790	**0.038**	0.258	0.797	**-0.039**	-0.195	0.846
IND	**-0.113**	-1.541	0.124						
Adjusted R^2	**0.568**			**0.378**			**.686**		
F	**65.692 ***		0.000	**20.105 ***		0.000	**57.171 ***		0.000
Durbin-Watson	**1.925**			**1.972**			**1.996**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.4.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for one-year-ahead cash flows.

Table 4.57 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on one-year-ahead cash flows

	$ZCFO_{t+1}$	**ZCI_t**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**BIG4t**	**AUDITCt**	**IND**	**VIF**
				POOL					
$ZCFO_{t+1}$	1.000	0.766 *	0.679 *	0.013	0.240 *	0.197 *	-0.069	-0.152 *	
ZCI_t		1.000	0.807 *	-0.014	0.284 *	0.194 *	-0.069	-0.149 *	3.072
$ZSIZE_t$			1.000	-0.011	0.204 *	0.179 *	-0.106 *	-0.054	2.931
$ZGROWTH_t$				1.000	-0.012	-0.083	-0.033	0.060	1.014
$ZRISK_t$					1.000	-0.016	0.060	-0.411 *	1.290
$BIG4_t$						1.000	-0.151 *	0.061	1.079
$AUDITC_t$							1.000	-0.029	1.039
IND								1.000	1.229

Table 4.57 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on one-year-ahead cash flows (Cont.)

	$ZCFO_{t+1}$	ZCI_t	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	BIG4t	AUDITCt	IND	VIF
				AGRO					
$ZCFO_{t+1}$	1.000	0.602 *	0.568 *	0.049	0.120 *	0.152 *	-0.062		
ZCI_t		1.000	0.879 *	0.050	0.170 *	0.106	-0.106		4.561
$ZSIZE_t$			1.000	-0.013	0.256 *	0.110	-0.106		4.749
$ZGROWTH_t$				1.000	0.041	-0.125 *	-0.028		1.038
$ZRISK_t$					1.000	-0.140 *	-0.008		1.121
$BIG4_t$						1.000	-0.139 *		1.078
$AUDITC_t$							1.000		1.031
				TECH					
$ZCFO_{t+1}$	1.000	0.524 *	0.756 *	-0.030	0.244 *	0.257 *	-0.086		
ZCI_t		1.000	0.562 *	0.082	-0.155 *	0.183 *	-0.066		1.620
$ZSIZE_t$			1.000	0.010	0.155 *	0.251 *	-0.110		1.648
$ZGROWTH_t$				1.000	-0.203 *	0.041	-0.176 *		1.073
$ZRISK_t$					1.000	0.150 *	0.107		1.208
$BIG4_t$						1.000	-0.160 *		1.121
$AUDITC_t$							1.000		1.080

Note: "*" implied statistic significant level at 0.05.

Table 4.58 The effects of financial and non-financial on past comprehensive income predictability for one-year-ahead cash flows

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
Constant	**-0.021**	-0.246	0.806	**-0.212 ***	-2.661	0.008	**-0.014**	-0.119	0.906
ZCI_t	**0.213 ***	3.562	0.000	**0.475 ***	3.542	0.001	**0.235 ***	3.205	0.002
$ZSIZE_t$	**0.629 ***	9.376	0.000	**0.159**	1.327	0.186	**0.836 ***	9.207	0.000
$ZGROWTH_t$	**0.023**	0.694	0.488	**0.018**	0.693	0.489	**-0.189**	-0.442	0.659
$ZRISK_t$	**0.141 ***	2.438	0.015	**0.016**	0.234	0.816	**0.286 ***	3.133	0.002
$BIG4_t$	**0.184 ***	2.212	0.028	**0.144**	1.598	0.112	**0.101**	0.727	0.468
$AUDITC_t$	**0.017**	0.125	0.901	**0.044**	0.298	0.766	**-0.099**	-0.441	0.660
IND	**-0.156 ***	-1.972	0.049						
Adjusted R^2	**0.495**			**0.358**			**0.602**		
F	**49.135 ***		0.000	**18.569 ***		0.000	**39.902 ***		0.000
Durbin-Watson	**1.697**			**2.008**			**1.680**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.4.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for one-year-ahead cash flows.

Table 4.59 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on one-year-ahead cash flows

	$ZCFO_{t+1}$	**$ZCFO_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZCFO_{t+1}$	1.000	0.444 *	0.679 *	0.013	0.240 *	0.197 *	-0.069	-0.152 *	
$ZCFO_t$		1.000	0.544 *	-0.031	0.094 *	0.161 *	-0.034	-0.076	1.441
$ZSIZE_t$			1.000	-0.011	0.204 *	0.179 *	-0.106 *	-0.054	1.512
$ZGROWTH_t$				1.000	-0.012	-0.083	-0.033	0.060	1.014
$ZRISK_t$					1.000	-0.016	0.060	-0.411 *	1.264
$BIG4_t$						1.000	-0.151 *	0.061	1.074
$AUDITC_t$							1.000	-0.029	1.040
				AGRO					
$ZCFO_{t+1}$	1.000	0.579 *	0.568 *	0.049	0.120 *	0.152 *	-0.062		
$ZCFO_t$		1.000	0.771 *	0.006	0.127 *	0.132 *	-0.055		2.521
$ZSIZE_t$			1.000	-0.013	0.256 *	0.110	-0.106		2.670
$ZGROWTH_t$				1.000	0.041	-0.125 *	-0.028		1.020
$ZRISK_t$					1.000	-0.140 *	-0.008		1.116
$BIG4_t$						1.000	-0.139 *		1.083
$AUDITC_t$							1.000		1.034
				TECH					
$ZCFO_{t+1}$	1.000	0.832 *	0.756 *	-0.030	0.244 *	0.257 *	-0.086		
$ZCFO_t$		1.000	0.846 *	-0.115	0.322 *	0.264 *	-0.089		4.212
$ZSIZE_t$			1.000	0.010	0.155 *	0.251 *	-0.110		3.839
$ZGROWTH_t$				1.000	-0.203 *	0.041	-0.176 *		1.110
$ZRISK_t$					1.000	0.150 *	0.107		1.232
$BIG4_t$						1.000	-0.160 *		1.115
$AUDITC_t$							1.000		1.081

Note: "*" implied statistic significant level at 0.05.

Table 4.60 The effects of financial and non-financial on past free cash flows predictability for one-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
Constant	**-0.010**	-0.137	0.892	**-0.155**	-1.933	.055	**0.025**	0.238	0.812
$ZCFO_t$	**0.619 ***	9.973	0.000	**0.331 ***	3.660	.000	**0.726 ***	7.521	0.000
$ZSIZE_t$	**0.221 ***	3.057	0.002	**0.280 ***	3.117	.002	**0.229**	1.881	0.062
$ZGROWTH_t$	**0.027**	0.921	0.358	**0.027**	1.039	.300	**0.388**	1.013	0.313
$ZRISK_t$	**0.016**	0.321	0.748	**0.012**	.179	.858	**0.001**	0.010	0.992
$BIG4_t$	**0.114**	1.526	0.128	**0.126**	1.396	.164	**0.082**	0.677	0.499
$AUDITC_t$	**-0.008**	-0.065	0.948	**0.004**	.026	.979	**0.028**	0.144	0.885
IND	**-0.098**	-1.380	0.168						
Adjusted R^2	**0.595**			**0.361**			**0.692**		
F	**73.275 ***		0.000	**18.783 ***		0.000	**58.789 ***		0.000
Durbin-Watson	**2.278**			**2.193**			**2.120**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.4.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for one-year-ahead cash flows.

Table 4.61 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on one-year-ahead cash flows

	$ZCFO_{t+1}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZCFO_{t+1}$	1.000	0.726 *	0.679 *	0.013	0.240 *	0.197 *	-0.069	-0.152	
$ZFCF_t$		1.000	0.777 *	0.012	0.166 *	0.186 *	-0.095 *	-0.101	2.569
$ZSIZE_t$			1.000	-0.011	0.204 *	0.179 *	-0.106 *	-0.054	2.600
$ZGROWTH_t$				1.000	-0.012	-0.083	-0.033	0.060	1.016
$ZRISK_t$					1.000	-0.016	0.060	-0.411	1.262
$BIG4_t$						1.000	-0.151 *	0.061	1.074
$AUDITC_t$							1.000	-0.029	1.038
IND								1.000	1.227

Table 4.61 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on one-year-ahead cash flows (Cont.)

	$ZCFO_{t+1}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
AGRO									
$ZCFO_{t+1}$	1.000	0.281 *	0.568 *	0.049	0.120 *	0.152 *	-0.062		
$ZFCF_t$		1.000	0.432 *	-0.019	-0.020	0.162 *	-0.017	1.274	1.455
$ZSIZE_t$			1.000	-0.013	0.256 *	0.110	-0.106	1.370	1.334
$ZGROWTH_t$				1.000	0.041	-0.125 *	-0.028	1.019	1.040
$ZRISK_t$					1.000	-0.140 *	-0.008	1.124	1.096
$BIG4_t$						1.000	-0.139 *	1.091	1.200
$AUDITC_t$							1.000	1.033	1.024
TECH									
$ZCFO_{t+1}$	1.000	0.552 *	0.756 *	-0.030	0.244 *	0.257 *	-0.086		
$ZFCF_t$		1.000	0.640 *	-0.219 *	0.147 *	0.171 *	-0.056	1.855	1.127
$ZSIZE_t$			1.000	0.010	0.155 *	0.251 *	-0.110	1.840	1.068
$ZGROWTH_t$				1.000	-0.203 *	0.041	-0.176 *	1.170	1.116
$ZRISK_t$					1.000	0.150 *	0.107	1.102	1.094
$BIG4_t$						1.000	-0.160 *	1.111	1.235
$AUDITC_t$							1.000	1.078	1.104

Note: "*" implied statistic significant level at 0.05.

Table 4.62 The effects of financial and non-financial on past free cash flows predictability for one-year-ahead cash flows

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
Constant	**-0.007**	-0.088	0.930	**-0.198 ***	-2.388	0.018	**-0.005**	-0.044	0.965
$ZFCF_t$	**0.111 ***	2.062	0.040	**0.025**	0.432	0.666	**0.148**	1.516	0.132
$ZSIZE_t$	**0.727 ***	12.402	0.000	**0.519 ***	7.793	0.000	**0.910 ***	9.241	0.000
$ZGROWTH_t$	**0.031**	0.933	0.352	**0.030**	1.140	0.256	**0.061**	0.132	0.895
$ZRISK_t$	**0.099**	1.731	0.084	**-0.009**	-0.136	0.892	**0.199 ***	2.223	0.028
$BIG4_t$	**0.181 ***	2.138	0.033	**0.143**	1.530	0.128	**0.139**	0.983	0.327
$AUDITC_t$	**0.012**	0.089	0.929	**0.030**	0.195	0.846	**-0.050**	-0.216	0.829
IND	**-0.166 ***	-2.068	0.039						
Adjusted R^2	**0.482**			**0.315**			**0.581**		
F	**46.787 ***		0.000	**15.468 ***		0.000	**36.650 ***		0.000
Durbin-Watson	**1.758**			**1.859**			**1.681**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

According to the conditions of regression method, the relationships among independent variables shall not be more than the relationships with dependent variable, and the results in Table 4.55, 4.57, 4.59, and 4.61 showed that there was no multicollinearity problem.

The results of the hypothesis testing showed that all regression models were significant at a significance level of 0.05 (Table 4.56, 4.58, 4.60, and 4.62). Considering the predictability in AGRO industry, the best predictors were ranked as follows: EARN (Adjusted R^2 = 37.8 percent, Table 4.56); CFO (Adjusted R^2 = 36.1 percent, Table 4.60); CI (Adjusted R^2 = 35.8 percent, Table 4.58); and FCF (Adjusted R^2 = 31.5 percent, Table 4.62). As for TECH and pooled industry, the results revealed the same direction, and the best predictors were CFO, EARN, FCF, and CI, respectively.

The results of testing the effects of financial and non-financial on the predictability showed that each industry had been difficultly affected. In AGRO industry, based on regression model of EARN and CI prediction, the results showed that financial and non-financial factors had no significant effect on the model, despite SIZE which had a significant effect on the prediction model with CFO and FCF predictors.

By focusing on TECH and pooled industry, the results revealed the same direction that SIZE and RISK had the significant effects on the predictability of CI and FCF for one-year-ahead cash flows prediction. On the other hand, SIZE had no significant effect on the predictability of CFO. In addition, SIZE and RISK had the significant effects on EARN, CI, and FCF predictors for one-year-ahead cash flows in

TECH industry. As for pooled industry, the predictability of CI and FCF was affected by SIZE, RISK, BIG4, and type of industry.

Furthermore, to investigate the effect of financial and non-financial factors on the predictability of past financial performance for two-year-ahead cash flows, the hypothesis was formulated as follow.

H2.5 Financial and non-financial factors have the effects on the predictability for two-year-ahead cash flows, divided to four sub-hypotheses.

H2.5.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for two-year-ahead cash flows.

Table 4.63 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on two-year-ahead cash flows

	$ZCFO_{t+2}$	$ZEARN_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZCFO_{t+2}$	1.000	0.684 *	0.610 *	0.004	0.254 *	0.187 *	0.019	-0.147 *	
$ZEARN_t$		1.000	0.837 *	0.018	0.170 *	0.183 *	-0.080	-0.148 *	3.376
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	3.379
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.019
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.299
$BIG4_t$						1.000	-0.163 *	0.048	1.080
$AUDITC_t$							1.000	-0.010	1.033
IND								1.000	1.299
				AGRO					
$ZCFO_{t+2}$	1.000	0.617 *	0.608 *	0.029	0.100	0.145 *	-0.052		
$ZEARN_t$		1.000	0.852 *	0.054	0.178 *	0.102	-0.105		3.718
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		3.823
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.035
$ZRISK_t$					1.000	-0.153 *	-0.014		1.102
$BIG4_t$						1.000	-0.151 *		1.088
$AUDITC_t$							1.000		1.035

Table 4.63 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on two-year-ahead cash flows (Cont.)

	$ZCFO_{t+2}$	$ZEARN_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
TECH									
$ZCFO_{t+2}$	1.000	0.701 *	0.607 *	-0.057	0.271 *	0.241 *	0.067		
$ZEARN_t$		1.000	0.831 *	0.002	0.091	0.261 *	-0.075		3.293
$ZSIZE_t$			1.000	-0.026	0.097	0.235 *	-0.038		3.248
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.048
$ZRISK_t$					1.000	0.210 *	0.022		1.062
$BIG4_t$						1.000	-0.176 *		1.152
$AUDITC_t$							1.000		1.073

Note: "*" implied statistic significant level at 0.05.

Table 4.64 The effects of financial and non-financial on past earnings predictability for two-year-ahead cash flows

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.176**	-1.884	0.060	**-0.140**	-1.537	0.126	**-0.203**	-1.400	0.164
$ZEARN_t$	**0.572 ***	7.984	0.000	**0.394 ***	3.188	0.002	**0.610 ***	6.210	0.000
$ZSIZE_t$	**0.099**	1.380	0.169	**0.411 ***	2.794	0.006	**0.050**	0.530	0.597
$ZGROWTH_t$	**0.005**	0.139	0.889	**0.013**	0.432	0.667	**-0.128**	-0.227	0.820
$ZRISK_t$	**0.145 ***	3.256	0.001	**-0.024**	-0.418	0.677	**0.234 ***	3.360	0.001
$BIG4_t$	**0.176**	1.876	0.061	**0.138**	1.361	0.175	**0.117**	0.685	0.494
$AUDITC_t$	**0.313 ***	2.035	0.043	**0.087**	0.529	0.597	**0.559 ***	2.008	0.047
IND	**0.038**	0.430	0.668						
Adjusted R^2	**0.491**			**0.394**			**0.531**		
F	**47.114 ***		0.000	**21.263 ***		0.000	**28.765 ***		0.000
Durbin-Watson	**1.576**			**1.596**			**1.599**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.5.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for two-year-ahead cash flows.

Table 4.65 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on two-year-ahead cash flows

	$ZCFO_{t+2}$	ZCI_t	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZCFO_{t+2}$	1.000	0.495 *	0.610 *	0.004	0.254 *	0.187 *	0.019	-0.147 *	
ZCI_t		1.000	0.770 *	0.038	-0.021	0.137 *	-0.049	-0.064	2.663
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	2.788
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.021
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.387
$BIG4_t$						1.000	-0.163 *	0.048	1.073
$AUDITC_t$							1.000	-0.010	1.031
IND								1.000	1.300
				AGRO					
$ZCFO_{t+2}$	1.000	0.638 *	0.608 *	0.029	0.100	0.145 *	-0.052		
ZCI_t		1.000	0.849 *	0.087	0.181 *	0.112	-0.119		3.723
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		3.782
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.055
$ZRISK_t$					1.000	-0.153 *	-0.014		1.101
$BIG4_t$						1.000	-0.151 *		1.090
$AUDITC_t$							1.000		1.036
				TECH					
$ZCFO_{t+2}$	1.000	0.460 *	0.607 *	-0.057	0.271 *	0.241 *	0.067		
ZCI_t		1.000	0.757 *	0.096	-0.141 *	0.172 *	-0.024		2.702
$ZSIZE_t$			1.000	-0.026	0.097	0.235 *	-0.038		2.666
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.073
$ZRISK_t$					1.000	0.210 *	0.022		1.187
$BIG4_t$						1.000	-0.176 *		1.144
$AUDITC_t$							1.000		1.073

Note: "*" implied statistic significant level at 0.05.

Table 4.66 The effects of financial and non-financial on past comprehensive income predictability for two-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	-0.209 *	-2.051	0.041	**-0.163**	-1.810	0.072	-0.265	-1.629	0.106
ZCI_t	0.128	1.845	0.066	**0.588** *	3.977	0.000	0.105	1.114	0.267
$ZSIZE_t$	0.469 *	6.622	0.000	**0.323** *	2.246	0.026	0.447 *	4.662	0.000
$ZGROWTH_t$	0.018	0.423	0.673	**0.003**	0.088	0.930	-0.111	-0.173	0.863
$ZRISK_t$	0.172 *	3.440	0.001	**-0.025**	-0.426	0.670	0.265 *	3.204	0.002
$BIG4_t$	0.230 *	2.267	0.024	**0.126**	1.257	0.210	0.218	1.143	0.255
$AUDITC_t$	0.252	1.508	0.132	**0.103**	0.637	0.525	0.451	1.440	0.152
IND	0.030	0.312	0.755						
Adjusted R^2	0.398			**0.411**			0.408		
F	32.640 *		0.000	**22.784** *		0.000	17.903 *		0.000
Durbin-Watson	1.326			**1.718**			1.389		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.5.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for two-year-ahead cash flows.

Table 4.67 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on two-year-ahead cash flows

	$ZCFO_{t+2}$	$ZCFO_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZCFO_{t+2}$	1.000	0.729 *	0.610 *	0.004	0.254 *	0.187 *	0.019	-0.147 *	
$ZCFO_t$		1.000	0.524 *	-0.010	0.319 *	0.186 *	-0.061	-0.192 *	1.505
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	1.400
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.015
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.373
$BIG4_t$						1.000	-0.163 *	0.048	1.089
$AUDITC_t$							1.000	-0.010	1.031
IND								1.000	1.299

Table 4.67 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on two-year-ahead cash flows

	$ZCFO_{t+2}$	$ZCFO_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
POOL									
$ZCFO_{t+2}$	1.000	0.729 *	0.610 *	0.004	0.254 *	0.187 *	0.019	-0.147 *	
$ZCFO_t$		1.000	0.524 *	-0.010	0.319 *	0.186 *	-0.061	-0.192 *	1.505
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	1.400
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.015
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.373
$BIG4_t$						1.000	-0.163 *	0.048	1.089
$AUDITC_t$							1.000	-0.010	1.031
IND								1.000	1.299
AGRO									
$ZCFO_{t+2}$	1.000	0.600 *	0.608 *	0.029 *	0.100	0.145 *	-0.052		
$ZCFO_t$		1.000	0.664 *	0.031	0.153 *	0.177 *	-0.061		1.836
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		1.871
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.025
$ZRISK_t$					1.000	-0.153 *	-0.014	1.124	1.099
$BIG4_t$						1.000	-0.151 *	1.091	1.115
$AUDITC_t$							1.000	1.033	1.036
TECH									
$ZCFO_{t+2}$	1.000	0.774 *	0.607 *	-0.057	0.271 *	0.241 *	0.067		
$ZCFO_t$		1.000	0.485 *	-0.139 *	0.315 *	0.241 *	-0.077		1.489
$ZSIZE_t$			1.000	-0.026	0.097	0.235 *	-0.038		1.348
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.064
$ZRISK_t$					1.000	0.210 *	0.022		1.154
$BIG4_t$						1.000	-0.176 *		1.145
$AUDITC_t$							1.000		1.078

Note: "*" implied statistic significant level at 0.05.

Table 4.68 The effects of financial and non-financial on past operating cash flows predictability for two-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.123**	-1.480	0.140	**-0.039**	-0.428	0.669	**-0.129**	-1.071	0.286
$ZCFO_t$	**0.558 ***	13.210	0.000	**0.543 ***	4.509	0.000	**0.567 ***	11.061	0.000
$ZSIZE_t$	**0.314 ***	7.710	0.000	**0.515 ***	5.142	0.000	**0.274 ***	5.474	0.000
$ZGROWTH_t$	**0.020**	0.568	0.571	**0.016**	0.516	0.607	**0.679**	1.449	0.149
$ZRISK_t$	**0.025**	0.622	0.534	**-0.039**	-0.678	0.499	**0.049**	0.814	0.417
$BIG4_t$	**0.101**	1.209	0.228	**0.076**	0.758	0.449	**0.111**	0.789	0.431
$AUDITC_t$	**0.299 ***	2.207	0.028	**0.049**	0.307	0.759	**0.690 ***	2.994	0.003
IND	**0.046**	0.577	0.564						
Adjusted R^2	**0.603**			**0.425**			**0.680**		
F	**73.681 ***		0.000	**23.999 ***		0.000	**53.155 ***		0.000
Durbin-Watson	**2.001**			**1.677**			**2.310**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.5.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for two-year-ahead cash flows.

Table 4.69 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on two-year-ahead cash flows

	$ZCFO_{t+2}$	**$ZFCF_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZCFO_{t+2}$	1.000	0.268 *	0.610 *	0.004	0.254 *	0.187 *	0.019	-0.147 *	
$ZFCF_t$		1.000	0.023	-0.031	0.108 *	0.136 *	-0.012	-0.102 *	1.037
$ZSIZE_t$			1.000	-0.013	0.192 *	0.168 *	-0.053	-0.168 *	1.081
$ZGROWTH_t$				1.000	-0.011	-0.095 *	-0.031	0.050	1.015
$ZRISK_t$					1.000	0.016	0.009	-0.465 *	1.305
$BIG4_t$						1.000	-0.163 *	0.048	1.095
$AUDITC_t$							1.000	-0.010	1.031
IND								1.000	1.305

Table 4.69 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past free cash flows on two-year-ahead cash flows (Cont.)

	$ZCFO_{t+2}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
AGRO									
$ZCFO_{t+2}$	1.000	-0.172 *	0.608 *	0.029 *	0.100	0.145 *	-0.052		
$ZFCF_t$		1.000	-0.152 *	-0.014	-0.099	0.193 *	0.017		1.074
$ZSIZE_t$			1.000	-0.007	0.240 *	0.106	-0.105		1.122
$ZGROWTH_t$				1.000	0.035	-0.132 *	-0.028		1.021
$ZRISK_t$					1.000	-0.153 *	-0.014		1.100
$BIG4_t$						1.000	-0.151 *		1.136
$AUDITC_t$							1.000		1.036
TECH									
$ZCFO_{t+2}$	1.000	0.421 *	0.607 *	-0.057	0.271 *	0.241 *	0.067		
$ZFCF_t$		1.000	0.049	-0.259 *	0.147 *	0.120	-0.032		1.103
$ZSIZE_t$			1.000	-0.026	0.097	0.235 *	-0.038		1.061
$ZGROWTH_t$				1.000	-0.111	-0.035	-0.175 *		1.118
$ZRISK_t$					1.000	0.210 *	0.022		1.074
$BIG4_t$						1.000	-0.176 *		1.145
$AUDITC_t$							1.000		1.075

Note: "*" implied statistic significant level at 0.05.

Table 4.70 The effects of financial and non-financial on past free cash flows predictability for two-year-ahead cash flows

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.170**	-1.736	0.084	-0.188	-1.952	0.052	**-0.173**	-1.216	0.226
$ZFCF_t$	**0.236 ***	5.708	0.000	-0.113	-1.764	0.079	**0.382 ***	6.781	0.000
$ZSIZE_t$	**0.577 ***	13.663	0.000	0.783 *	9.655	0.000	**0.525 ***	9.960	0.000
$ZGROWTH_t$	**0.027**	0.668	0.505	0.026	0.824	0.411	**0.985**	1.727	0.086
$ZRISK_t$	**0.131 ***	2.825	0.005	-0.037	-0.622	0.535	**0.187 ***	2.721	0.007
$BIG4_t$	**0.155**	1.575	0.116	0.184	1.745	0.083	**0.149**	0.895	0.372
$AUDITC_t$	**0.243**	1.520	0.129	0.085	0.508	0.612	**0.594 ***	2.173	0.031
IND	**0.063**	0.679	0.498						
Adjusted R^2	**0.447**			0.371			**0.550**		
F	**39.638 ***		0.000	19.366 *		0.000	**30.928 ***		0.000
Durbin-Watson	**1.506**			1.423			**2.005**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

According to Table 4.63, 4.65, 4.67, and 4.69, there was no multicollinearity problems among independent variables since VIF value was less than ten. The results of regression statistic shown in Table 4.64, 4.66, 4.68, and 4.70 revealed that autocorrelation problem arose in some models meaning that the models did not meet the conditions of linear regression. However, linear regression method could be applied to the rest. The regression results showed that CFO had the highest predictability for two-year-ahead cash flows in all selected industries. The ranking predictability factors for two-year-ahead cash flows of AGRO industry were CFO (Adjusted R^2 = 42.5 percent, Table 4.68), CI (Adjusted R^2 = 41.1 percent, Table 4.66), and EARN (Adjusted R^2 = 39.4 percent, Table 4.64), respectively. As for TECH industrr, the ranking of predictability was CFO (Adjusted R^2 = 68.0 percent, Table 4.68), FCF (Adjusted R^2 = 55.0 percent, Table 4.70), and EARN (Adjusted R^2 = 53.1 percent, Table 4.64), respectively.

Considering notification of the effects of financial and non-financial factors on the predictability for two-year-ahead cash flows, the results showed that in TECH industry SIZE and auditor change had the significant affected on three models (EARN, CFO, and FCF models) while RISK had a significant effect on two models (EARN and FCF). On the other hand, based on the effects of financial and non-financial factors in AGRO industry, it revealed that only SIZE had a significant effect on the models of EARN and CI predictors.

The hypothesis testing of the effect of financial and non-financial factors was as follows.

H2.6 Financial and non-financial factors have the effects on the predictability for three-year-ahead cash flows, divided to four sub-hypotheses.

H2.6.1 Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for three-year-ahead cash flows.

Table 4.71 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on three-year-ahead cash flows

	$ZCFO_{t+3}$	$ZEARN_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				POOL					
$ZCFO_{t+3}$	1.000	0.604 *	0.622 *	-0.062	0.276 *	0.162 *	-0.059	-0.209 *	
$ZEARN_t$		1.000	0.874 *	0.014	0.197 *	0.150 *	-0.097 *	-0.246 *	4.313
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	4.262
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.003
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.357
$BIG4_t$						1.000	-0.167 *	0.016	1.055
$AUDITC_t$							1.000	0.054	1.038
IND								1.000	1.386
				AGRO					
$ZCFO_{t+3}$	1.000	0.443 *	0.450 *	-0.039	0.095	0.154 *	-0.033		
$ZEARN_t$		1.000	0.847 *	0.081	0.145 *	0.048	-0.123 *		3.610
$ZSIZE_t$			1.000	0.057	0.229 *	0.058	-0.083		3.702
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.009
$ZRISK_t$					1.000	-0.130 *	0.018		1.089
$BIG4_t$						1.000	-0.109		1.038
$AUDITC_t$							1.000		1.029
				TECH					
$ZCFO_{t+3}$	1.000	0.602 *	0.625 *	-0.132	0.253 *	0.217 *	-0.079		
$ZEARN_t$		1.000	0.869 *	-0.034	0.078	0.249 *	-0.101		4.166
$ZSIZE_t$			1.000	-0.039	0.086	0.221 *	-0.077		4.107
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.025
$ZRISK_t$					1.000	0.264 *	-0.038		1.083
$BIG4_t$						1.000	-0.290 *		1.246
$AUDITC_t$							1.000		1.102

Note: "*" implied statistic significant level at 0.05.

Table 4.72 The effects of financial and non-financial on past earnings predictability for three-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.137**	-1.191	0.235	**-0.185 ***	-2.847	0.005	**-0.093**	-0.384	0.702
$ZEARN_t$	**0.243 ***	2.602	0.010	**0.246**	1.892	0.060	**0.236**	1.580	0.117
$ZSIZE_t$	**0.371 ***	4.006	0.000	**0.244**	1.900	0.059	**0.399 ***	2.694	0.008
$ZGROWTH_t$	**-0.062**	-1.381	0.168	**-0.030**	-1.162	0.247	**-0.192**	-1.220	0.225
$ZRISK_t$	**0.150 ***	2.862	0.005	**0.013**	0.297	0.767	**0.263 ***	2.505	0.014
$BIG4_t$	**0.164**	1.493	0.137	**0.145 ***	2.048	0.042	**0.015**	0.052	0.959
$AUDITC_t$	**0.024**	0.128	0.898	**0.050**	0.438	0.662	**-0.142**	-0.261	0.795
IND	**0.015**	0.134	0.893						
Adjusted R^2	**0.418**			**0.214**			**0.421**		
F	**30.607 ***		0.000	**9.104 ***		0.000	**14.197 ***		0.000
Durbin-Watson	**1.641**			**1.805**			**1.673**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.6.2 Financial and non-financial factors have the effects on the predictive ability of CI_t for three-year-ahead cash flows.

Table 4.73 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on three-year-ahead cash flows

	$ZCFO_{t+3}$	**ZCI_t**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZCFO_{t+3}$	1.000	0.290 *	0.622 *	-0.062	0.276 *	0.162 *	-0.059	-0.209 *	
ZCI_t		1.000	0.766 *	0.056	-0.014	0.107 *	-0.076	-0.129 *	2.655
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	2.770
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.008
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.467
$BIG4_t$						1.000	-0.167 *	0.016	1.051
$AUDITC_t$							1.000	0.054	1.036
IND								1.000	1.378

Table 4.73 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past comprehensive income on three-year-ahead cash flows (Cont.)

	$ZCFO_{t+3}$	ZCI_t	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
				AGRO					
$ZCFO_{t+3}$	1.000	0.401 *	0.450 *	-0.039	0.095	0.154 *	-0.033		
ZCI_t		1.000	0.843 *	0.099	0.138 *	0.065	-0.122 *		3.558
$ZSIZE_t$			1.000	0.057	0.229 *	0.058	-0.083		3.637
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.014
$ZRISK_t$					1.000	-0.130 *	0.018	1.124	1.091
$BIG4_t$						1.000	-0.109	1.091	1.037
$AUDITC_t$							1.000	1.033	1.028
				TECH					
$ZCFO_{t+3}$	1.000	0.254 *	0.625 *	-0.132	0.253 *	0.217 *	-0.079		
ZCI_t		1.000	0.753 *	0.063	-0.169 *	0.158 *	-0.069		2.698
$ZSIZE_t$			1.000	-0.039	0.086	0.221 *	-0.077		2.622
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.040
$ZRISK_t$					1.000	0.264 *	-0.038		1.242
$BIG4_t$						1.000	-0.290 *		1.243
$AUDITC_t$							1.000		1.101

Note: "*" implied statistic significant level at 0.05.

Table 4.74 The effects of financial and non-financial on past comprehensive income predictability for three-year-ahead cash flows

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.105**	-0.956	0.340	**-0.198 ***	-3.020	0.003	**-0.115**	-0.507	0.613
ZCI_t	**-0.417 ***	-5.985	0.000	**0.092**	0.703	0.483	**-0.434 ***	-3.915	0.000
$ZSIZE_t$	**0.911 ***	12.795	0.000	**0.373 ***	2.905	0.004	**0.940 ***	8.406	0.000
$ZGROWTH_t$	**-0.041**	-0.963	0.336	**-0.028**	-1.104	0.271	**-0.119**	-0.797	0.428
$ZRISK_t$	**0.061**	1.185	0.237	**0.008**	0.190	0.849	**0.111**	1.041	0.300
$BIG4_t$	**0.185**	1.768	0.078	**0.141 ***	1.975	0.050	**0.159**	0.593	0.554
$AUDITC_t$	**-0.034**	-0.191	0.849	**0.036**	0.317	0.751	**-0.165**	-0.321	0.749
IND	**-0.057**	-0.555	0.580						
Adjusted R^2	**0.471**			**0.200**			**0.484**		
F	**37.738 ***		0.000	**8.441 ***		0.000	**18.012 ***		0.000
Durbin-Watson	**1.703**			**1.770**			**1.735**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.6.3 Financial and non-financial factors have the effects on the predictive ability of CFO_t for three-year-ahead cash flows.

Table 4.75 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past operating cash flows on three-year-ahead cash flows

	$ZCFO_{t+3}$	**$ZCFO_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZCFO_{t+3}$	1.000	0.759 *	0.622 *	-0.062	0.276 *	0.162 *	-0.059	-0.209 *	
$ZCFO_t$		1.000	0.477 *	-0.085	0.360 *	0.161 *	-0.062	-0.258 *	1.459
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	1.326
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.012
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.445
$BIG4_t$						1.000	-0.167 *	0.016	1.064
$AUDITC_t$							1.000	0.054	1.035
IND								1.000	1.374
				AGRO					
$ZCFO_{t+3}$	1.000	0.274 *	0.450 *	-0.039 *	0.095	0.154 *	-0.033		
$ZCFO_t$		1.000	0.501 *	-0.076	0.077	0.140 *	-0.036		1.382
$ZSIZE_t$			1.000	0.057	0.229 *	0.058	-0.083		1.432
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.022
$ZRISK_t$					1.000	-0.130 *	0.018		1.081
$BIG4_t$						1.000	-0.109		1.055
$AUDITC_t$							1.000		1.019
				TECH					
$ZCFO_{t+3}$	1.000	0.801 *	0.625 *	-0.132	0.253 *	0.217 *	-0.079		
$ZCFO_t$		1.000	0.440 *	-0.173 *	0.358 *	0.233 *	-0.081		1.461
$ZSIZE_t$			1.000	-0.039	0.086	0.221 *	-0.077		1.283
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.048
$ZRISK_t$					1.000	0.264 *	-0.038		1.213
$BIG4_t$						1.000	-0.290 *		1.235
$AUDITC_t$							1.000		1.102

Note: "*" implied statistic significant level at 0.05.

Table 4.76 The effects of financial and non-financial on past operating cash flows predictability for three-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.064**	-0.719	0.473	**-0.185 ***	-2.697	0.008	**-0.007**	-0.043	0.966
$ZCFO_t$	**0.600 ***	14.392	0.000	**0.045**	0.455	0.650	**0.649 ***	10.696	0.000
$ZSIZE_t$	**0.338 ***	8.522	0.000	**0.430 ***	5.336	0.000	**0.340 ***	5.888	0.000
$ZGROWTH_t$	**-0.012**	-0.358	0.721	**-0.025**	-0.977	0.330	**-0.017**	-0.150	0.881
$ZRISK_t$	**-0.001**	-0.029	0.977	**0.006**	0.135	0.893	**-0.012**	-0.158	0.875
$BIG4_t$	**0.047**	0.552	0.582	**0.137**	1.900	0.059	**-0.037**	-0.188	0.851
$AUDITC_t$	**0.020**	0.137	0.891	**0.028**	0.244	0.807	**-0.023**	-0.061	0.951
IND	**0.042**	0.510	0.610						
Adjusted R^2	**0.656**			**0.198**			**0.719**		
F	**79.794 ***		0.000	**8.380 ***		0.000	**47.468 ***		0.000
Durbin-Watson	**2.130**			**1.724**			**2.417**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

H2.6.4 Financial and non-financial factors have the effects on the predictive ability of FCF_t for three-year-ahead cash flows.

Table 4.77 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on three-year-ahead cash flows

	$ZCFO_{t+3}$	**$ZFCF_t$**	**$ZSIZE_t$**	**$ZGROWTH_t$**	**$ZRISK_t$**	**$BIG4_t$**	**$AUDITC_t$**	**IND**	**VIF**
				POOL					
$ZCFO_{t+3}$	1.000	0.462 *	0.622 *	-0.062	0.276 *	0.162 *	-0.059	-0.209 *	
$ZFCF_t$		1.000	0.013	-0.157 *	0.104 *	0.179 *	-0.033	-0.076	1.073
$ZSIZE_t$			1.000	0.005	0.209 *	0.138 *	-0.074	-0.226 *	1.092
$ZGROWTH_t$				1.000	-0.031	0.001	-0.028	-0.010	1.029
$ZRISK_t$					1.000	0.044	-0.032	-0.500 *	1.362
$BIG4_t$						1.000	-0.167 *	0.016	1.086
$AUDITC_t$							1.000	0.054	1.035
IND								1.000	1.374

Table 4.77 Pearson correlation coefficients between variables and VIF coefficient for testing predictive ability of past earnings on three-year-ahead cash flows (Cont.)

	$ZCFO_{t+3}$	$ZFCF_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	$BIG4_t$	$AUDITC_t$	IND	VIF
AGRO									
$ZCFO_{t+3}$	1.000	0.450 *	0.450 *	-0.039 *	0.095	0.154 *	-0.033		
$ZFCF_t$		1.000	0.404 *	-0.115	-0.049	0.359 *	-0.011		1.455
$ZSIZE_t$			1.000	0.057	0.229 *	0.058	-0.083		1.334
$ZGROWTH_t$				1.000	-0.016	0.044	-0.022		1.040
$ZRISK_t$					1.000	-0.130 *	0.018		1.096
$BIG4_t$						1.000	-0.109		1.200
$AUDITC_t$							1.000		1.024
TECH									
$ZCFO_{t+3}$	1.000	0.462 *	0.625 *	-0.132	0.253 *	0.217 *	-0.079		
$ZFCF_t$		1.000	-0.080	-0.292 *	0.132	0.100	-0.051		1.127
$ZSIZE_t$			1.000	-0.039	0.086	0.221 *	-0.077		1.068
$ZGROWTH_t$				1.000	-0.100	-0.112	-0.047		1.116
$ZRISK_t$					1.000	0.264 *	-0.038		1.094
$BIG4_t$						1.000	-0.290 *		1.235
$AUDITC_t$							1.000		1.104

Note: "*" implied statistic significant level at 0.05.

Table 4.78 The effects of financial and non-financial on past earnings predictability for three-year-ahead cash flows

	POOL			**AGRO**			**TECH**		
	B	**t**	**sig**	**B**	**t**	**sig**	**B**	**t**	**sig**
(Constant)	**-0.012**	-0.128	0.898	**-0.108**	-1.633	0.104	**-0.075**	-0.401	0.690
$ZFCF_t$	**0.446 ***	11.467	0.000	**0.243 ***	4.045	0.000	**0.526 ***	8.584	0.000
$ZSIZE_t$	**0.596 ***	15.211	0.000	**0.316 ***	4.243	0.000	**0.661 ***	11.310	0.000
$ZGROWTH_t$	**0.009**	0.240	0.810	**-0.008**	-0.334	0.739	**0.120**	0.948	0.345
$ZRISK_t$	**0.114 ***	2.608	0.010	**0.026**	0.620	0.536	**0.190 ***	2.327	0.022
$BIG4_t$	**-0.011**	-0.123	0.902	**0.032**	0.432	0.666	**-0.031**	-0.141	0.888
$AUDITC_t$	**0.007**	0.042	0.966	**-0.002**	-0.018	0.986	**0.028**	0.065	0.948
IND	**0.034**	0.371	0.711						
Adjusted R^2	**0.593**			**0.267**			**0.654**		
F	**61.224 ***		0.000	**11.851 ***		0.000	**35.359 ***		0.000
Durbin-Watson	**1.913**			**1.728**			**2.194**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic states the result of autocorrelation.
3) The models met regression condition presented in bold.

According to Table 4.71, 4.73, 4.75 and 4.77, the results showed that there was no multicollinearity problem since VIF values were not greater than ten. Due to the testing of the predictability for three-year-ahead cash flows (Table 4.72, 4.74, 4.76, and 4.78), the results revealed that all models were significant at a significance level of 0.05. The results of pooled industry showed that the best predictors for three-year-ahead cash flows were CFO (Adjusted R^2 = 65.6 percent, Table 4.76), FCF (Adjusted R^2 = 59.3 percent, Table 4.78), CI (Adjusted R^2 = 47.1 percent, Table 4.74), and EARN (Adjusted R^2 = 41.8 percent, Table 4.72), respectively. Considering AGRO industry, it showed that the best predictors for three-year-ahead cash flows were FCF (Adjusted R^2 = 26.7 percent, Table 4.78), EARN (Adjusted R^2 = 21.4 percent, Table 4.72), CI (Adjusted R^2 = 20.0 percent, Table 4.74), and CFO (Adjusted R^2 = 19.8 percent, Table 4.76), respectively. As for TECH industry, the results revealed that rank of best predictors were CFO (Adjusted R^2 = 71.9 percent, Table 4.76), FCF (Adjusted R^2 = 65.4%, Table 4.78), CI (Adjusted R^2 = 48.4 percent, Table 4.74), and EARN (Adjusted R^2 = 42.1 percent, Table 4.72), respectively. By comparing between AGRO and TECH industry, the predictability in TECH industry was higher than in AGRO, and past cash flows was a better predictor than past earnings.

Regarding consequence of the testing for the effects of financial and non-financial factors, the results showed that SIZE had a significant effect (at a significance level of 0.05) on all predictors despite the only model consisting of EARN to predict three-year-ahead cash flows in AGRO industry. Meanwhile, RISK had a significant effect on three models in pooled industry and two models in TECH industry.

In conclusion, due to consequence of the statistic results, hypothesis 2 was supported by the findings that control variables had the significant effects on the prediction model whereas the four independent variables had prediction attributes.

4.4 Hypothesis Testing for the Predictability of Combinations Past Financial Performances plus Financial and Non-financial Factors

The previous parts showed the results of simples and multiple regression statistics. The results of predictability of past financial performance, with control variables, were inconsistent. Some control variables were significant at a significance level of 0.05 but some were not. To solve this problem, all variables were considered by using stepwise method for multiple regression which was applied to test the appropriated prediction models in each industry for one, two and three-year-ahead future earnings and future cash flows.

4.4.1 The Predictability of Combination of Past Financial Performances plus Financial and Non-financial Factors on Future Earnings

This part aimed to investigate the predictability of mixed past financial performances with control variables for future earnings. The combination of four variables including EARN, CI, CFO, and FCF plus control variables were presented in the testing models as follows.

H3.1 Combination of past financial performances has the predictability for future earnings.

There were three sub hypotheses to test the predictability for one, two and three-year-ahead future earnings shown as follows:

H3.1.1 Combination of past financial performances has the predictability for one-year-ahead earnings;

H3.1.2 Combination of past financial performances has the predictability for two-year-ahead earnings; and

H3.1.3 Combination of past financial performances has the predictability for three-year-ahead earnings.

The result of testing for the predictability of combination of past financial performance for one-year-ahead earnings, hypothesis 3.1.1 was as follows.

H3.1.1 Combination of past financial performances has the predictability for one-year-ahead earnings.

According to Table 4.79, the regression statistic results by stepwise method showed the significant models for one-year-ahead earnings predictions in POOL (Adjusted R^2 = 77.8 percent), AGRO (Adjusted R^2 = 83.1 percent), and TECH (Adjusted R^2 = 75.9 percent). Comparing the best model in each industry, it showed that the combination of EARN, CI, and CFO strengthened the predictability in all industries. Furthermore, SIZE had only a significant effect on the predictability of past financial performances in AGRO industry (Table 4.80).

Table 4.79 The results of regression statistic by stepwise method for one-year-ahead earnings prediction

POOL

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.852[a]	0.726	0.725	0.43913635	0.726	907.953	1	343	.000	
2	0.880[b]	0.774	0.772	0.39944670	0.048	72.548	1	342	.000	
3	0.883[c]	0.780	0.778	0.39489210	0.006	8.935	1	341	.003	2.192

a. Predictors: (Constant), $ZEARN_t$

b. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$

c. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, ZCI_t

d. Dependent Variable: $ZEARN_{t+1}$

AGRO

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.899[a]	0.808	0.807	0.30628232	0.808	792.460	1	188	0.000	
2	0.907[b]	0.823	0.821	0.29508188	0.015	15.543	1	187	0.000	
3	0.911[c]	0.829	0.826	0.29068705	0.006	6.697	1	186	0.010	
4	0.914[d]	0.835	0.831	0.28650367	0.006	6.471	1	185	0.012	1.776

a. Predictors: (Constant), $ZEARN_t$

b. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$

c. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, ZCI_t

d. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, ZCI_t, $ZSIZE_t$

e. Dependent Variable: $ZEARN_{t+1}$

TECH

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.826[a]	0.682	0.680	.55520252	0.682	328.277	1	153	0.000	
2	0.869[b]	0.754	0.751	.48951221	0.072	44.819	1	152	0.000	
3	0.874[c]	0.763	0.759	.48213617	0.009	5.686	1	151	0.018	2.333

a. Predictors: (Constant), $ZEARN_t$

b. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$

c. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, ZCI_t

d. Dependent Variable: $ZEARN_{t+1}$

Table 4.80 The predictability of mixed past financial performances plus financial and non-financial factors for one-year-ahead earnings

	POOL			AGRO			TECH		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	**-0.023**	-1.062	0.289	**-0.002**	-0.105	0.917	**-0.061**	-1.552	0.123
$ZEARN_t$	**0.429** *	6.543	0.000	**0.654** *	6.762	0.000	**0.328** *	3.318	0.001
ZCI_t	**0.156** *	2.989	0.003	**0.347** *	3.195	0.002	**0.177** *	2.385	0.018
$ZCFO_t$	**0.351** *	9.093	0.000	**0.188** *	3.151	0.002	**0.407** *	7.024	0.000
$ZSIZE_t$				**-0.180** *	-2.544	0.012			
Adjusted R^2	**0.778**			**0.831**			**0.759**		
F	**401.991** *		0.000	**233.876** *		0.000	**162.401** *		0.000
Durbin-Watson	**2.192**			**1.776**			**2.333**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic stated the result of autocorrelation.
3) The models met regression conditions presented in bold.

Table 4.81 Pearson correlation coefficients between variables and VIF coefficient for one-year-ahead earnings prediction; stepwise method

POOL

	$ZEARN_{t+1}$	$ZEARN_t$	ZCI_t	$ZCFO_t$	VIF
$EARN_{t+1}$	1.000	0.852 *	0.707 *	0.781 *	
$ZEARN_t$		1.000	0.841 *	0.746 *	7.019
ZCI_t			1.000	0.484 *	4.065
$ZCFO_t$				1.000	2.680

AGRO

	$ZEARN_{t+1}$	$ZEARN_t$	ZCI_t	$ZCFO_t$	$SIZE_t$	VIF
$ZEARN_{t+1}$	1.000	0.899 *	0.881 *	0.809 *	0.784 *	
$ZEARN_t$		1.000	0.935 *	0.824 *	0.890 *	9.842
ZCI_t			1.000	0.835 *	0.879 *	9.558
$ZCFO_t$				1.000	0.771 *	3.479
$ZSIZE_t$					1.000	5.276

TECH

	$ZEARN_{t+1}$	$ZEARN_t$	ZCI_t	$ZCFO_t$	VIF
$ZEARN_{t+1}$	1.000	0.826 *	0.627 *	0.774 *	
$ZEARN_t$		1.000	0.805 *	0.707 *	6.965
ZCI_t			1.000	0.345 *	3.957

Note: "*" implied statistic significant level at 0.05.

Regarding the testing for the predictability of combination of past financial performance for two-year-ahead earnings, hypothesis 3.1.2 was conducted as follows.

H3.1.2 Combination of past financial performances has the predictability for two-year-ahead earnings.

The results of two-year-ahead earnings prediction model tested by using regression statistic by stepwise method were shown in Table 4.82, 4.83, and 4.84. The only model that met the regression conditions was the model to predict two-year-ahead earnings in TECH industry while the others had autocorrelation problem since Durbin-Watson value was less than 1.5.

Due to the predictability for two-year-ahead earnings in TECH industry, the combination of past financial performance including EARN, CFO, and FCF was the significant model at 74.2 percent of the predictive value (Table 4.83). In addition, the control variable suitable for this model was RISK.

Table 4.82 The results of regression statistic by stepwise method for two-year-ahead earnings prediction

POOL

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.752[a]	0.566	0.564	0.660	0.566	434.959	1	334	0.000	
2	0.798[b]	0.636	0.634	0.605	0.070	64.388	1	333	0.000	
3	0.805[c]	0.648	0.645	0.596	0.012	11.701	1	332	0.001	
4	0.812[d]	0.659	0.655	0.587	0.011	10.770	1	331	0.001	
5	0.816[e]	0.666	0.661	0.582	0.007	6.802	1	330	0.010	1.125

a. Predictors: (Constant), $ZEARN_t$

b. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$

c. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$

d. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$, $ZRISK_t$

e. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$, $ZRISK_t$, ZCI_t

f. Dependent Variable: $ZEARN_{t+2}$

Table 4.82 The results of regression statistic by stepwise method for two-year-ahead earnings prediction (Cont.)

AGRO

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.770[a]	0.593	0.591	0.558	0.593	271.054	1	186	0.000	
2	0.830[b]	0.688	0.685	0.489	0.095	56.642	1	185	0.000	1.082

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, ZCI_t

c. Dependent Variable: $ZEARN_{t+2}$

TECH

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.788[a]	0.620	0.618	0.707	0.620	238.423	1	146	0.000	
2	0.842[b]	0.708	0.704	0.621	0.088	43.800	1	145	0.000	
3	0.857[c]	0.734	0.729	0.595	0.026	14.054	1	144	0.000	
4	0.865[d]	0.749	0.742	0.581	0.015	8.321	1	143	0.005	1.645

a. Predictors: (Constant), $ZEARN_t$

b. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$

c. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$

d. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$, $ZRISK_t$

e. Dependent Variable: $ZEARN_{t+2}$

Table 4.83 The predictability of mixed past financial performances plus financial and non-financial factors for two-year-ahead earnings

	POOL			**AGRO**			**TECH**		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	0.000	0.000	1.000	0.156 *	4.014	0.000	**-0.025**	**-0.471**	**0.638**
$ZEARN_t$	0.275 *	3.243	0.001				**0.383** *	**7.491**	**0.000**
ZCI_t	0.174 *	2.608	0.010	0.687 *	7.526	0.000			
$ZCFO_t$	0.597 *	9.397	0.000	0.957 *	8.932	0.000	**0.572** *	**8.111**	**0.000**
$ZFCF_t$	-0.183 *	-4.200	0.000				**-0.252** *	**-4.318**	**0.000**
$ZRISK_t$	-0.098 *	-2.848	0.005				**-0.143** *	**-2.885**	**0.005**
Adjusted R^2	0.661			0.685			**0.742**		
F	131.824 *		0.000	204.391		0.000	**106.604** *		**0.000**
Durbin-Watson	1.125			1.082			**1.645**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic stated the result of autocorrelation.
3) The models met regression conditions presented in bold.

Table 4.84 Pearson correlation coefficients between variables and VIF coefficient for two-year-ahead earnings prediction; stepwise method

			POOL			
	$ZEARN_{t+2}$	$ZCFO_t$	$ZFCF_t$	$ZRISK_t$	ZCI_t	VIF
$ZEARN_{t+2}$	1.000	-0.687*	0.295*	-0.089*	-0.852*	7.135
$ZCFO_t$		1.000	-0.648*	-0.196*	0.430*	3.998
$ZFCF_t$			1.000	0.118*	-0.115*	1.885
$ZRISK_t$				1.000	0.161*	1.168
ZCI_t					1.000	4.402
			AGRO			
			$ZEARN_{t+2}$	$ZCFO_t$	ZCI_t	VIF
$ZEARN_{t+2}$			1.000	0.770*	0.744*	
$ZCFO_t$				1.000	0.668*	1.807
ZCI_t					1.000	1.807
			TECH			
		$ZEARN_{t+2}$	$ZCFO_t$	$ZFCF_t$	$ZRISK_t$	VIF
$ZEARN_{t+2}$		1.000	-0.673*	0.391*	0.200*	1.953
$ZCFO_t$			1.000	-0.753*	-0.356*	4.201
$ZFCF_t$				1.000	0.189*	2.497
$ZRISK_t$					1.000	1.174

Note: "*" implied statistic significant level at 0.05.

Due to the testing for the predictability of combination of past financial performance for three-year-ahead earnings, hypothesis 3.1.3 was conducted as follows.

H3.1.3 Combination of past financial performances has the predictability for three-year-ahead earnings.

Considering the predictive value of past financial performances for three-year-ahead earnings, the significant regression models were shown in Table 4.85. The same variables that affected all models were CFO and SIZE. Regarding AGRO industry, the factors of appropriated model consisted of EARN, CFO, FCF, and SIZE at 75.6 percent of the predictive value. On the other hand, the prediction model for TECH industry comprised CFO, SIZE, GROWTH, and RISK (Adjusted R^2 = 72.0 percent) while the appropriated prediction model for POOL industry consisted of CI, CFO, SIZE, and IND

at 68.3 percent of the predictive value. The results showed that different industry caused the different results for the future earnings.

Table 4.85 The results of regression statistic by stepwise method for three-year-ahead earnings prediction

POOL

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R square Change	F Change	df1	df2	Sig. F Change	
1	0.701[a]	0.492	0.490	0.714	0.492	278.731	1	288	0.000	
2	0.814[b]	0.662	0.660	0.584	0.170	144.420	1	287	0.000	
3	0.823[c]	0.677	0.674	0.571	0.015	13.293	1	286	0.000	
4	0.829[d]	0.687	0.683	0.563	0.010	9.386	1	285	0.002	1.467

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), ZCFOt, $ZSIZE_t$

c. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, ZCI_t

d. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, ZCI_t, IND

e. Dependent Variable: $ZEARN_{t+3}$

AGRO

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.834[a]	0.695	0.694	0.262	0.695	406.088	1	178	0.000	
2	0.845[b]	0.714	0.711	0.254	0.019	11.757	1	177	0.001	
3	0.857[c]	0.734	0.729	0.246	0.020	13.076	1	176	0.000	
4	0.872[d]	0.761	0.756	0.234	0.027	19.750	1	175	0.000	1.572

a. Predictors: (Constant), $ZEARN_t$

b. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$

c. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$

d. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$, $ZSIZE_t$

e. Dependent Variable: $ZEARN_{t+3}$

Table 4.85 The results of regression statistic by stepwise method for three-year-ahead earnings prediction (Cont.)

TECH										
Model Summary[e]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.723[a]	0.522	0.518	1.039	0.522	118.131	1	108	0.000	
2	0.837[b]	0.701	0.695	0.826	0.179	63.864	1	107	0.000	
3	0.848[c]	0.719	0.712	0.803	0.019	7.023	1	106	0.009	
4	0.854[d]	0.730	0.720	0.792	0.011	4.127	1	105	0.045	1.787

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$

c. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, $ZRISK_t$

d. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, $ZRISK_t$, $ZGROWTH_t$

e. Dependent Variable: $ZEARN_{t+3}$

Table 4.86 The predictability of mixed past financial performances plus financial and non-financial factors for three-year-ahead earnings

	POOL			**AGRO**			**TECH**		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	**-0.135** *	-2.451	0.015	**0.134** *	6.276	0.000	**-0.035**	-0.390	0.697
$ZEARN_t$				**1.211** *	14.558	0.000			
ZCI_t	**0.203** *	3.676	0.000						
$ZCFO_t$	**0.552** *	13.477	0.000	**0.379** *	5.938	0.000	**0.588** *	9.696	0.000
$ZFCF_t$				**-0.182** *	-4.550	0.000			
$ZSIZE_t$	**0.302** *	4.845	0.000	**-0.350** *	-4.444	0.000	**0.456** *	7.990	0.000
$ZGROWTH_t$							**0.225** *	2.032	0.045
$ZRISK_t$							**-0.198** *	-2.609	0.010
IND	**0.218** *	3.064	0.002						
Adjusted R^2	**0.683**			**0.756**			**0.720**		
F	**156.5687** *		0.000	**139.283** *		0.000	**71.011** *		0.000
Durbin-Watson	**1.467**			**1.572**			**1.787**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic stated the result of autocorrelation.
3) The models met regression conditions presented in bold.

Table 4.87 Pearson correlation coefficients between variables and VIF coefficient for three-year-ahead earnings prediction; stepwise method

			POOL			
	$ZEARN_{t+3}$	ZCI_t	$ZCFO_t$	$ZSIZE_t$	IND	VIF
$ZEARN_{t+3}$	1.000	0.510 *	0.701 *	0.697 *	-0.131 *	
ZCI_t		1.000	0.161 *	0.766 *	-0.129 *	2.788
$ZCFO_t$			1.000	0.477 *	-0.258 *	1.529
$ZSIZE_t$				1.000	-0.226 *	3.536
IND					1.000	1.087
			AGRO			
	$ZEARN_{t+3}$	$ZEARN_t$	$ZCFO_t$	$ZFCF_t$	$ZSIZE_t$	VIF
$ZEARN_{t+3}$	1.000	0.834 *	0.512 *	0.367 *	0.652 *	
$ZEARN_t$		1.000	0.469 *	0.519 *	0.847 *	4.088
$ZCFO_t$			1.000	0.534 *	0.501 *	1.628
$ZFCF_t$				1.000	0.404 *	1.662
$ZSIZE_t$					1.000	3.843
			TECH			
	$ZEARN_{t+3}$	$ZCFO_t$	$ZSIZE_t$	$ZGROWTH_t$	$ZRISK_t$	VIF
$ZEARN_{t+3}$	1.000	0.723 *	0.697 *	-0.001	0.098	
$ZCFO_t$		1.000	0.440 *	-0.173	0.358 *	1.454
$ZSIZE_t$			1.000	-0.039	0.086	1.250
$ZGROWTH_t$				1.000	-0.100	1.034
$ZRISK_t$					1.000	1.157

Note: "*" implied statistic significant level at 0.05.

4.4.2 The Predictability of Combination of Past Financial Performances plus Financial and Non-financial Factors on Future Earnings

This part aimed to investigate the predictability of mixed past financial performances with control variables for future cash flows. The combination of four variables including EARN, CI, CFO, and FCF plus control variables was presented in the testing models as follows.

H3.2 Combination of past financial performances has the predictability for future cash flows.

There were three sub hypotheses to test the predictability for one, two and three-year-ahead future cash flows which were as follows.

H3.2.1 Combination of past financial performances has the predictability for one-year-ahead cash flows.

H3.2.2 Combination of past financial performances has the predictability for two-year-ahead cash flows.

H3.2.3 Combination of past financial performances has the predictability for three-year-ahead cash flows.

Regarding the testing for the predictability of combination of past financial performance for one-year-ahead cash flows, hypothesis 3.2.1 was conducted as follows.

H3.2.1 Combination of past financial performances has the predictability for one-year-ahead cash flows.

The results of regression statistical testing by stepwise method were shown in Table 4.88. According to Table 4.89, the prediction model for one-year-ahead cash flows in AGRO comprised EARN, CFO, and FCF at 43.4 percent of the predictive value. However, in TECH and POOL industry, EARN was not suitable for the prediction model. Therefore, CI, CFO, and FCF were the composition in the appropriate one-year-ahead cash flows prediction model in TECH (Adjusted R^2 = 77.0 percent) and POOL (Adjusted R^2 = 67.3 percent). Financial and non-financial factors had no effects on the one-year-ahead cash flows prediction model.

Table 4.88 The results of regression statistic by stepwise method for one-year-ahead cash flows prediction

POOL

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.766[a]	0.587	0.586	0.599	0.587	487.601	1	343	0.000	
2	0.803[b]	0.644	0.642	0.557	0.057	54.903	1	342	0.000	
3	0.822[c]	0.676	0.673	0.532	0.032	33.401	1	341	0.000	2.294

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, $ZFCF_t$

c. Predictors: (Constant), $ZCFO_t$, $ZFCFt$, ZCI_t

d. Dependent Variable: $ZCFO_{t+1}$

AGRO

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.620[a]	0.385	0.382	0.502	0.385	117.580	1	188	0.000	
2	0.632[b]	0.399	0.393	0.498	0.015	4.529	1	187	0.035	
3	0.666[c]	0.443	0.434	0.480	0.044	14.662	1	186	0.000	2.169

a. Predictors: (Constant), $ZEARN_t$

b. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$

c. Predictors: (Constant), $ZEARN_t$, $ZCFO_t$, $ZFCF_t$

d. Dependent Variable: $ZCFO_{t+1}$

TECH

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.832[a]	0.692	0.690	0.657	0.692	343.059	1	153	0.000	
2	0.871[b]	0.759	0.756	0.583	0.067	42.323	1	152	0.000	
3	0.877[c]	0.769	0.764	0.572	0.010	6.718	1	151	0.010	
4	0.881[d]	0.777	0.771	0.565	0.008	5.058	1	150	0.026	
5	0.880[e]	0.775	0.770	0.565	0.002	1.201	1	150	0.275	2.245

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, $ZEARN_t$

c. Predictors: (Constant), $ZCFO_t$, $ZEARN_t$, $ZFCF_t$

d. Predictors: (Constant), $ZCFO_t$, $ZEARN_t$, $ZFCF_t$, ZCI_t

e. Predictors: (Constant), $ZCFO_t$, $ZFCF_t$, ZCI_t

f. Dependent Variable: $ZCFO_{t+1}$

Table 4.89 The predictability of mixed past financial performances plus financial and non-financial factors for one-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	**0.009**	0.327	0.744	**-0.044**	-1.212	0.227	**0.042**	0.920	0.359
$ZEARN_t$				**0.250** *	2.467	0.015			
ZCI_t	**0.231** *	5.779	0.000				**0.283** *	6.025	0.000
$ZCFO_t$	**0.976** *	17.911	0.000	**0.655** *	4.363	0.000	**0.974** *	13.979	0.000
$ZFCF_t$	**-0.414** *	-7.311	0.000	**-0.325** *	-3.829	0.000	**-0.313** *	-3.606	0.000
Adjusted R^2	**0.673**			**0.434**			**0.770**		
F	**237.063** *		0.000	**62.158** *		0.000	**173.139** *		0.000
Durbin-Watson	**2.294**			**2.169**			**2.245**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic stated the result of autocorrelation.
3) The models met regression conditions presented in bold.

Table 4.90 Pearson correlation coefficients between variables and VIF coefficient for one-year-ahead cash flows prediction; stepwise method

	POOL				
	$ZCFO_{t+1}$	**ZCI_t**	**$ZCFO_t$**	**$ZFCF_t$**	**VIF**
$ZCFO_{t+1}$	1.000	0.541 *	0.766 *	0.444 *	
ZCI_t		1.000	0.484 *	0.336 *	1.313
$ZCFO_t$			1.000	0.777 *	2.935
$ZFCF_t$				1.000	2.533
	AGRO				
	$ZCFO_{t+1}$	**$ZEARN_t$**	**$ZCFO_t$**	**$ZFCF_t$**	**VIF**
$ZCFO_{t+1}$	1.000	0.620 *	0.579 *	0.281 *	
ZCI_t		1.000	0.824 *	0.506 *	3.849
$ZCFO_t$			1.000	0.797 *	7.844
$ZFCF_t$				1.000	3.391
	TECH				
	$ZCFO_{t+1}$	**ZCI_t**	**$ZCFO_t$**	**$ZFCF_t$**	**VIF**
$ZCFO_{t+1}$	1.000	0.524 *	0.832 *	0.552 *	
ZCI_t		1.000	0.345 *	0.199 *	1.154
$ZCFO_t$			1.000	0.789 *	2.941
$ZFCF_t$				1.000	2.697

Note: "*" implied statistic significant level at 0.05.

To test the predictability of combination of past financial performance for two-year-ahead cash flows, hypothesis 3.2.2 was conducted as follows.

H3.2.2 Combination of past financial performances has the predictability for two-year-ahead cash flows.

According to Table 4.91, 4.92, and 4.93, the investigation of the predictive ability of past firm performance revealed that the same factors including CI, CFO, and FCF were related to two-year-ahead cash flows in all selected industries. The different factor was AUDITC which showed that it had a significant effect in TECH and POOL but no effect in AGRO (Table 4.38). The power of the predictability was 64.0 percent in POOL, 48.3 percent in AGRO, and 70.9 percent in TECH.

Table 4.91 The results of regression statistic by stepwise method for two-year-ahead cash flows prediction

POOL

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.729[a]	0.532	0.531	0.685	0.532	379.526	1	334	0.000	
2	0.786[b]	0.617	0.615	0.621	0.085	74.220	1	333	0.000	
3	0.799[c]	0.639	0.635	0.604	0.021	19.678	1	332	0.000	
4	0.803[d]	0.644	0.640	0.600	0.006	5.445	1	331	0.020	2.010

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, ZCI_t

c. Predictors: (Constant), $ZCFO_t$, ZCI_t, $ZFCF_t$

d. Predictors: (Constant), $ZCFO_t$, ZCI_t, $ZFCF_t$, $AuditC_t$

Table 4.91 The results of regression statistic by stepwise method for two-year-ahead cash flows prediction (Cont.)

AGRO

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.638[a]	0.407	0.404	0.555	0.407	127.867	1	186	0.000	
2	0.679[b]	0.462	0.456	0.531	0.054	18.603	1	185	0.000	
3	0.701[c]	0.491	0.483	0.517	0.030	10.820	1	184	0.001	2.073

a. Predictors: (Constant), ZCI_t

b. Predictors: (Constant), ZCI_t, $ZCFO_t$

c. Predictors: (Constant), ZCI_t, $ZCFO_t$, $ZFCF_t$

d. Dependent Variable: $ZCFO_{t+2}$

TECH

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.774[a]	0.600	0.597	0.796	0.600	218.580	1	146	0.000	
2	0.826[b]	0.683	0.679	0.711	0.084	38.220	1	145	0.000	
3	0.836[c]	0.700	0.693	0.694	0.017	7.958	1	144	0.005	
4	0.847[d]	0.717	0.709	0.676	0.017	8.684	1	143	0.004	2.077

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, ZCI_t

c. Predictors: (Constant), $ZCFO_t$, ZCI_t, $AUDITC_t$

d. Predictors: (Constant), $ZCFO_t$, ZCI_t, $AUDITC_t$, $ZFCF_t$

e. Dependent Variable: $ZCFO_{t+2}$

Table 4.92 The predictability of mixed past financial performances plus financial and non-financial factors for two-year-ahead cash flows

	POOL			**AGRO**			**TECH**		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	**-0.021** *	-0.625	0.532	**-0.021** *	-0.503	0.615	**-0.046**	-0.784	0.434
ZCI_t	**0.268** *	7.538	0.000	**0.536** *	5.491	0.000	**0.236** *	5.499	0.000
$ZCFO_t$	**0.771** *	17.297	0.000	**0.563** *	4.902	0.000	**0.780** *	12.610	0.000
$ZFCF_t$	**-0.192** *	-4.522	0.000	**-0.187** *	-3.289	0.001	**-0.190** *	-2.947	0.004
$AUDITC_t$	**0.297** *	2.333	0.020				**0.637** *	2.993	0.003
Adjusted R^2	**0.640**			**0.483**			**0.709**		
F	**150.011** *		0.000	**59.269** *		0.000	**90.516** *		0.000
Durbin-Watson	**2.010**			**2.073**			**2.077**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic stated the result of autocorrelation.
3) The models met regression conditions presented in bold.

Table 4.93 Pearson correlation coefficients between variables and VIF coefficient for two-year-ahead cash flows prediction; stepwise method

			POOL			
	$ZCFO_{t+2}$	**ZCI_t**	**$ZCFO_t$**	**$ZFCF_t$**	**$AUDITC_t$**	**VIF**
$ZCFO_{t+2}$	1.000	0.495 *	0.729 *	0.268 *	0.019	
ZCI_t		1.000	0.296 *	-0.015	-0.049	1.173
$ZCFO_t$			1.000	0.604 *	-0.061	1.849
$ZFCF_t$				1.000	-0.012	1.683
$AUDITC_t$					1.000	1.005
			AGRO			
		$ZCFO_{t+2}$	**ZCI_t**	**$ZCFO_t$**	**$ZFCF_t$**	**VIF**
$ZCFO_{t+2}$		1.000	0.638 *	0.600 *	-0.172 *	
ZCI_t			1.000	0.668 *	-0.062	1.851
$ZCFO_t$				1.000	0.079	1.856
$ZFCF_t$					1.000	1.031
			TECH			
	$ZCFO_{t+2}$	**ZCI_t**	**$ZCFO_t$**	**$ZFCF_t$**	**$AUDITC_t$**	**VIF**
$ZCFO_{t+2}$	1.000	0.460 *	0.774 *	0.421 *	0.067	
ZCI_t		1.000	0.231 *	-0.012	-0.024	1.137
$ZCFO_t$			1.000	0.721 *	-0.077	2.382
$ZFCF_t$				1.000	-0.032	2.245
$AUDITC_t$					1.000	1.007

Note: "*" implied statistic significant level at 0.05.

Considering the testing for the predictability of combination of past financial performance for three-year-ahead cash flows, hypothesis 3.2.3 was as follows.

H3.2.3 Combination of past financial performances has the predictability for three-year-ahead cash flows.

Considering the three-year-ahead cash flows prediction, the results showed that, in AGRO, the predictability (Adjusted R^2 = 28.1 percent) exactly declined when comparing with short term prediction while the others had the same predictive power. The appropriated models were shown in Table 4.95 revealing that FCF and SIZE had the significant predictive ability in all selected industries. The other factors, CI and CFO, had affected three-year-ahead cash flows prediction in TECH and POOL.

Table 4.94 The results of regression statistic by stepwise method for three-year-ahead cash flows prediction

POOL

Model Summary[e]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.759[a]	0.576	0.575	0.652	0.576	391.486	1	288	0.000	
2	0.815[b]	0.664	0.661	0.582	0.087	74.504	1	287	0.000	
3	0.824[c]	0.680	0.676	0.569	0.016	14.539	1	286	0.000	
4	0.835[d]	0.697	0.693	0.554	0.018	16.634	1	285	0.000	2.159

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$

c. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, $ZFCF_t$

d. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, $ZFCF_t$, ZCI_t

e. Dependent Variable: $ZCFO_{t+3}$

AGRO

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.450[a]	0.203	0.198	0.392	0.203	45.286	1	178	0.000	
2	0.537[b]	0.289	0.281	0.372	0.086	21.368	1	177	0.000	1.732

a. Predictors: (Constant), $ZFCF_t$

b. Predictors: (Constant), ZFF_t, $ZSIZE_t$

c. Dependent Variable: $ZCFO_{t+3}$

TECH

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.801[a]	0.642	0.639	0.895	0.642	193.796	1	108	0.000	
2	0.857[b]	0.734	0.729	0.775	0.092	37.040	1	107	0.000	
3	0.864[c]	0.747	0.740	0.760	0.013	5.339	1	106	0.023	
4	0.874[d]	0.764	0.755	0.738	0.017	7.569	1	105	0.007	2.457

a. Predictors: (Constant), $ZCFO_t$

b. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$

c. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, $ZFCF_t$

d. Predictors: (Constant), $ZCFO_t$, $ZSIZE_t$, $ZFCF_t$, ZCI_t

e. Dependent Variable: $ZCFO_{t+3}$

Table 4.95 The predictability of mixed past financial performances plus financial and non-financial factors for three-year-ahead cash flows

	POOL			AGRO			TECH		
	B	**t**	**Sig.**	**B**	**t**	**Sig.**	**B**	**t**	**Sig.**
(Constant)	**-0.000**	-0.000	1.000	**-0.092** *	-3.064	0.003	**-0.035** *	-0.476	0.635
ZCI_t	**-0.226** *	-4.079	0.000				**-0.213** *	-2.751	0.007
$ZCFO_t$	**0.375** *	6.802	0.000				**0.418** *	4.941	0.000
$ZFCF_t$	**0.210** *	4.615	0.000	**0.250** *	4.633	0.000	**0.208** *	2.802	0.006
$ZSIZE_t$	**0.613** *	9.256	0.000	**0.322** *	4.623	0.000	**0.621** *	6.392	0.000
Adjusted R^2	**0.697**			**0.281**			**0.755**		
F	**164.242** *		0.000	**35.918** *		0.000	**84.946** *		0.000
Durbin-Watson	**2.159**			**1.732**			**2.457**		

Note: 1) "*" implied statistic significant level at 0.05.
2) The Durbin-Watson statistic stated the result of autocorrelation.
3) The models met regression conditions presented in bold.

Table 4.96 Pearson correlation coefficients between variables and VIF coefficient for three-year-ahead cash flows prediction; stepwise method

POOL						
	$ZCFO_{t+3}$	ZCI_t	$ZCFO_t$	$ZFCF_t$	$ZSIZE_t$	VIF
$ZCFO_{t+3}$	1.000	0.290 *	0.759 *	0.462 *	0.622 *	
ZCI_t		1.000	0.161 *	-0.066	0.766 *	2.891
$ZCFO_t$			1.000	0.609	0.477 *	2.867
$ZFCF_t$				1.000	0.013	1.954
$ZSIZE_t$					1.000	4.133
AGRO						
			$ZCFO_{t+3}$	$ZFCF_t$	$ZSIZE_t$	VIF
$ZCFO_{t+3}$			1.000	0.450 *	0.450 *	
$ZFCF_t$				1.000	0.404 *	1.195
$ZSIZE_t$					1.000	1.195
TECH						
	$ZCFO_{t+3}$	ZCI_t	$ZCFO_t$	$ZFCF_t$	$ZSIZE_t$	VIF
$ZCFO_{t+3}$	1.000	0.254 *	0.801 *	0.462 *	0.625 *	
ZCI_t		1.000	0.103	-0.182 *	0.753 *	2.785
$ZCFO_t$			1.000	0.633 *	0.440 *	3.262
$ZFCF_t$				1.000	-0.080	2.336
$ZSIZE_t$					1.000	4.168

Note: 1) "*" implied statistic significant level at 0.05.

4.5 Comparison of Variables' Sign in Regression Statistical Model

The conclusion of sign of each variable was shown in Table 4.97 to 4.100, stating that in every regression model sign of EARN and FCF were "+" as same as the expected sign. Considering CI and CFO, it revealed that most of regression model signs of CI and CFO were "+" as same as expected sign whereas some models with sign "-" occurred in cash flows prediction models. It implied that future firm performance values were in the same direction as past financial performance.

Due to SIZE, notification of sign of financial and non-financial factors (Table 4.98) showed 97 percent of significant variable, and the sign was "+" implying that when the firms' size was changed, the future performance would also change in the same direction. Only regression models in AGRO which SIZE was shown in "-".

Considering GROWTH, the results were not consistent, and the findings showed that it was significant in two models in predicting future earnings where sign of the first one was "+" and the other was "-". Meanwhile, GROWTH was also significant in one model in predicting future cash flows, and the sign was "+". These implied that firm's GROWTH affected future earnings in the positive direction. When firm's growth changed, the future earnings and cash flows changed in the same direction due to the growth of total assets would generate revenues, but some depreciable assets need to amortize which reflect earnings.

Considering RISK factor, the results revealed that both the predicting future earnings sign and the predicting future cash flows sign were "+" (1 percent) less than"-" (75 percent). It meant that future firm performance was in the opposite direction with RISK and occurred in TECH only. Regarding BIG4 and auditor change factors, there were no significant effects on cash flows prediction models while the signs of BIG4 and

audit firm change in future cash flows prediction were "+". In addition, BIG4 affected three-year-ahead cash flows prediction in AGRO, probably causing from changing accounting policy and accounting standard. Furthermore, audit firm change affected three-year-ahead cash flow prediction in TECH since the descriptive data showed that listed companies in TECH changed audit firm due to not only the regulation of SEC but also audit fees.

In conclusion, signs of significant value of financial and non-financial factors compared with expected sign were shown in Table 4.97 to 4.98. The results showed that sign of SIZE was positive as expected sign. The expected sign of RISK was positive while the results of sign of RISK on future cash flows prediction model were the same, but the results revealed that sign of RISK on future earnings prediction model was stated in "-". These were from the changing in accounting standard which reflected the recognition of revenues and expenses.

The sign of AUDITC was "+" comparing with expected sign "-", and it should be reflected from the carefulness and responsibility of new audit firm to make a reliable financial statement. The conservative financial statements should reflect the accuracy of predictive value. Furthermore, due to the last factor, BIG4, the results stated that sign of BIG4 was "+" and affected only future cash flows prediction model in AGRO. Due to the background data that most of AGRO listed companies were audited by BIG4 and normally changed to non-BIG4 in a few ratios, it then confirmed the accuracy amount of future cash flows.

Regarding the appropriated regression models by stepwise method (Table 4.99), the results showed that EARN and CFO were usually displayed "+" in all models. The

sign of CI was “+” as same as expected sign. However, there was one model in TECH to predict three-year-ahead cash flows that sign was “-”. Due to notification of FCF’s sign, the results showed “-” as majority signs implying that if FCF was small amount, the firms shall invest a large amount of money in capital expenditures so that it would reflect future firm performance. However, FCF was one component in each model.

The significant control variables in regression model by stepwise method were SIZE, GROWTH, RISK, and AUDITC. The sign of SIZE and GROWTH were consistent with expected sign as “+”. The sign of AUDITC was “-” as mentioned above. The sign of RISK was “+” which was significant in three-year-ahead earnings prediction model in TECH due to the rapid changes and innovation which should affect the product cycles and adaptability of firms.

Table 4.97 Signs of significant variables in regression models

	Future earnings prediction									Future cash flows prediction									Future firm's performance			
	One-year-ahead			Two-year-ahead			Three-year-ahead			One-year-ahead			Two-year-ahead			Three-year-ahead						
	POOL	AGRO	TECH	POOL	AGRO	TECH	POOL	AGRO	TECH	POOL	AGRO	TECH	POOL	AGRO	TECH	POOL	AGRO	TECH	+	%	-	%
ZEARN	+	+	+			+		+		+	+	+	+	+	+	+	+	+	14	100%	-	-
ZSIZE	+		+					-		+		+		+		+		+	7	87%	1	13%
ZGROWTH																			-	-	-	-
ZRISK										+		+	+		+	+		+	6	100%	-	-
BIG4																	+		1	100%	-	-
AUDITC													+		+				2	100%	-	-
IND																			-	-	-	-
ZCI	+	+	+						+	+	+			+		+		-	9	90%	1	10%
ZSIZE	+		+						+	+		+		+		+	+	+	9	100%	-	-
ZGROWTH																			-	-	-	-
ZRISK							-			+		+							2	67%	1	33%
BIG4										+							+		2	100%	-	-
AUDITC																			-	-	-	-
IND										-									-	-	1	100%
ZCFO		+				+	+		+	+	+	+	+	-	+	+	-	+	11	85%	2	15%
ZSIZE		+				+	+		+	+	+		+	+	+	+		+	11	100%	-	-
ZGROWTH						-			+								+		2	67%	1	33%
ZRISK						+	-		-										1	33%	2	67%
BIG4																			-	-	-	-
AUDITC													+		+				2	100%	-	-
IND																			-	-	-	-
ZFCF									+	+	+	+	+		+	+	+	+	9	100%	-	-
ZSIZE									+	+	+	+	+		+	+	+	+	9	100%	-	-
ZGROWTH																			-	-	-	-
ZRISK												+	+		+	+		+	5	100%	-	-
BIG4										+									1	100%	-	-
AUDITC															+				1	100%	-	-
IND										-									-	-	1	100%

Table 4.98 Conclusion signs of significant variables in prediction models compare with expected sign

Past financial performance	EARN				CI				CFO				FCF				Total				Expected sign
Factors	+	%	-	%	+	%	-	%	+	%	-	%	+	%	-	%	+	%	-	%	
Future earnings prediction																					
Past financial performance	5	100%	-	-	4	100%	-	-	4	100%	-	-	1	100%	-	-	14	100%	-	-	+
ZSIZE	2	67%	1	33%	3	100%	-	-	4	100%	-	-	1	100%	-	-	10	91%	1	9%	+
ZGROWTH	-	-	-	-	-	-	-	-	1	50%	1	50%	-	-	-	-	1	50%	1	50%	+
ZRISK	-	-	-	-	-	-	1	100%	1	33%	2	67%	-	-	-	-	1	25%	3	75%	+
BIG4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AUDITC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Future cash flows prediction																					
Past financial performance	9	100%	-	-	5	83%	1	17%	7	78%	2	22%	8	100%	-	-	29	91%	3	9%	+
ZSIZE	5	100%	-	-	6	100%	-	-	7	100%	-	-	8	100%	-	-	26	100%	-	-	+
ZGROWTH	-	-	-	-	-	-	-	-	1	100%	-	-	-	-	-	-	1	100%	-	-	+
ZRISK	6	100%	-	-	2	100%	-	-	-	-	-	-	5	100%	-	-	13	100%	-	-	+
BIG4	1	100%	-	-	2	100%	-	-	-	-	-	-	1	100%	-	-	4	100%	-	-	-
AUDITC	2	100%	-	-	-	-	-	-	2	100%	-	-	1	100%	-	-	5	100%	-	-	-
Total																					
Past financial performance	14	100%	-	-	9	90%	1	10%	11	85%	2	15%	9	100%	-	-	43	93%	3	7%	+
ZSIZE	7	88%	1	13%	9	100%	-	-	11	100%	-	-	9	100%	-	-	36	97%	1	3%	+
ZGROWTH	-	-	-	-	-	-	-	-	2	67%	1	33%	-	-	-	-	2	67%	1	33%	+
ZRISK	6	100%	-	-	2	67%	1	33%	1	33%	2	67%	5	100%	-	-	14	82%	3	18%	+
BIG4	1	100%	-	-	2	100%	-	-	-	-	-	-	1	100%	-	-	4	100%	-	-	-
AUDITC	2	100%	-	-	-	-	-	-	2	100%	-	-	1	100%	-	-	5	100%	-	-	-

Table 4.99 Signs of significant variables in future earnings prediction models compare with expected sign

Past financial performance	EARN				CI				CFO				FCF				Total				Expected sign
Factors	+	%	-	%	+	%	-	%	+	%	-	%	+	%	-	%	+	%	-	%	
POOL																					
Past financial performance	1	100%	-	-	1	100%	-	-	1	100%	-	-	-	-	-	-	3	100%	-	-	+
ZSIZE	1	100%	-	-	1	100%	-	-	1	100%	-	-	-	-	-	-	3	100%	-	-	+
ZGROWTH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
ZRISK	-	-	-	-	-	-	1	100%	-	-	1	100%	-	-	-	-	-	-	2	100%	+
BIG4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AUDITC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AGRO																					
Past financial performance	2	100%	-	-	1	100%	-	-	1	100%	-	-	-	-	-	-	4	100%	-	-	+
ZSIZE	-	-	1	100%	-	-	-	-	1	100%	-	-	-	-	-	-	1	50%	1	50%	+
ZGROWTH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
ZRISK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
BIG4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AUDITC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TECH																					
Past financial performance	2	100%	-	-	2	100%	-	-	2	100%	-	-	1	100%	-	-	7	100%	-	-	+
ZSIZE	1	100%	-	-	2	100%	-	-	2	100%	-	-	1	100%	-	-	6	100%	-	-	+
ZGROWTH	-	-	-	-	-	-	-	-	1	50%	1	50%	-	-	-	-	1	50%	1	50%	+
ZRISK	-	-	-	-	-	-	-	-	1	50%	1	50%	-	-	-	-	1	50%	1	50%	+
BIG4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AUDITC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL																					
Past financial performance	5	100%	-	-	4	100%	-	-	4	100%	-	-	1	100%	-	-	14	100%	-	-	+
ZSIZE	2	67%	1	33%	3	100%	-	-	4	100%	-	-	1	100%	-	-	10	91%	1	9%	+
ZGROWTH	-	-	-	-	-	-	-	-	1	50%	1	50%	-	-	-	-	1	50%	1	50%	+
ZRISK	-	-	-	-	-	-	1	100%	1	33%	2	67%	-	-	-	-	1	25%	3	75%	+
BIG4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AUDITC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.100 Signs of significant variables in future cash flows prediction models compare with expected sign

Past financial performance	EARN				CI				CFO				FCF				Total				Expected
Factors	+	%	-	%	+	%	-	%	+	%	-	%	+	%	-	%	+	%	-	%	sign
POOL																					
Past financial performance	3	100%	-	-	2	100%	-	-	3	100%	-	-	3	100%	-	-	11	100%	-	-	+
ZSIZE	2	100%	-	-	2	100%	-	-	3	100%	-	-	3	100%	-	-	10	100%	-	-	+
ZGROWTH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
ZRISK	3	100%	-	-	1	100%	-	-	-	-	-	-	2	100%	-	-	6	100%	-	-	+
BIG4	-	-	-	-	1	100%	-	-	-	-	-	-	1	100%	-	-	2	100%	-	-	-
AUDITC	1	100%	-	-	-	-	-	-	1	100%	-	-	-	-	-	-	2	100%	-	-	-
AGRO																					
Past financial performance	3	100%	-	-	2	100%	-	-	1	33%	2	67%	2	100%	-	-	8	80%	2	20%	+
ZSIZE	1	100%	-	-	2	100%	-	-	2	100%	-	-	2	100%	-	-	7	100%	-	-	+
ZGROWTH	-	-	-	-	-	-	-	-	1	100%	-	-	-	-	-	-	1	100%	-	-	+
ZRISK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
BIG4	1	100%	-	-	1	100%	-	-	-	-	-	-	-	-	-	-	2	100%	-	-	-
AUDITC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TECH																					
Past financial performance	3	100%	-	-	1	50%	1	50%	3	100%	-	-	3	100%	-	-	10	91%	1	9%	+
ZSIZE	2	100%	-	-	2	100%	-	-	2	100%	-	-	3	100%	-	-	9	100%	-	-	+
ZGROWTH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
ZRISK	3	100%	-	-	1	100%	-	-	-	-	-	-	3	100%	-	-	7	100%	-	-	+
BIG4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AUDITC	1	100%	-	-	-	-	-	-	1	100%	-	-	1	100%	-	-	3	100%	-	-	-
TOTAL																					
Past financial performance	9	100%	-	-	5	83%	1	17%	7	78%	2	22%	8	100%	-	-	29	91%	3	9%	+
ZSIZE	5	100%	-	-	6	100%	-	-	7	100%	-	-	8	100%	-	-	26	100%	-	-	+
ZGROWTH	-	-	-	-	-	-	-	-	1	100%	-	-	-	-	-	-	1	100%	-	-	+
ZRISK	6	100%	-	-	2	100%	-	-	-	-	-	-	5	100%	-	-	13	100%	-	-	+
BIG4	1	100%	-	-	2	100%	-	-	-	-	-	-	1	100%	-	-	4	100%	-	-	-
AUDITC	2	100%	-	-	-	-	-	-	2	100%	-	-	1	100%	-	-	5	100%	-	-	-

Table 4.101 Signs of significant variables of regression model by stepwise method in future firms' performance prediction models

	Future earnings prediction												
	One-year-ahead			Two-year-ahead			Three-year-ahead			Sign			
	POOL	AGRO	TECH	POOL	AGRO	TECH	POOL	AGRO	TECH	+	%	-	%
ZEARN	+	+	+					+		4	100%	-	-
ZCI	+	+	+			+	+			5	100%	-	-
ZCFO	+	+	+			+	+	+	+	7	100%	-	-
ZFCF		+				-		-		1	33%	2	67%
ZSIZE		-					+	-	+	2	50%	2	50%
ZGROWTH									+	1	100%	-	-
ZRISK									-	-	-	1	100%
BIG4										-	-	-	-
AUDITC										-	-	-	-
IND										-	-	-	-
	Future cash flows prediction												
	One-year-ahead			Two-year-ahead			Three-year-ahead			Sign			
	POOL	AGRO	TECH	POOL	AGRO	TECH	POOL	AGRO	TECH	+	%	-	%
ZEARN		+								1	100%	-	-
ZCI	+		+	+	+	+	-		-	5	71%	2	29%
ZCFO	+	+	+	+	+	+	+		+	8	100%	-	-
ZFCF	-	-	-	-	-	-	+	+	+	3	33%	6	67%
ZSIZE							+	+	+	3	100%	-	-
ZGROWTH										-	-	-	-
ZRISK										-	-	-	-
BIG4										-	-	-	-
AUDITC				+		+				2	100%	-	-
IND										-	-	-	-

4.6 The Appropriated Model in Predicting Future Firms' Performance

This section aimed to answer the third research question on which model was the appropriated model for predicting future firm performance. The results found in the previous sections displayed the predictability of past financial performances including the effects of financial and non-financial factors with stepwise regression method. The selection of the appropriated model was considered from Adjusted R^2 that meant the power of predictability of each model.

4.6.1 The Appropriated Model in Predicting Future Earnings

The results of the predictability of past financial performance based on the combination of past financial performances including financial and non-financial factors were shown in Table 4.102. It revealed that EARN was the highest predictive value to forecast one-year-ahead earnings in POOL (72.5 percent), AGRO (80.7 percent), and TECH (68.0 percent). However, when adding financial and non-financial factors in the regression model, the predictability was higher than EARN itself in POOL (74.1 percent) and TECH (71.3 percent). In contrast, the predictability of EARN with financial and non-financial factors was at 80.3 percent which was less than EARN itself (80.7 percent) in AGRO. In addition, the combination of past financial performances showed the highest predictive value among simple and multiple regression models. By concentrating on the components of past financial performances (Table 4.102), it showed that EARN, CI, and CFO were significant for one-year-ahead earnings prediction in all selected industries. Furthermore, FCF and SIZE were added on in only AGRO.

According to two-year-ahead earnings, the results showed that past financial performances had the predictability under regression method only in TECH (Table 4.102). The results revealed that EARN was the only one predictor by itself (61.8 percent), and when financial and non-financial factors were added, CFO was the highest predictability (67.0 percent) comparing with EARN and FCF. Therefore, the stepwise regression method confirmed that the components of EARN, CFO, and FCF plus RISK factor were the mixed predictor for two-year-ahead earnings in TECH.

Due to three-year-ahead earnings (Table 4.104), based on each past financial performance, it showed that EARN was the best predictor in all selected industries. The

predictability of past financial performances with financial and non-financial factors showed that the highest predictability in POOL and TECH were CFO plus control variables at 67.7 percent and 71.4 percent, respectively while EARN with financial and non-financial factors had the highest predictability in AGRO (70.0 percent).

Regarding the combinations of past financial performances, the results stated that the predictive values were at the highest in each industry when comparing with previous simple and multiple regression models. Therefore, the past financial performance predictors in AGRO consisted of EARN, CFO, and FCF plus one control variable, which was SIZE (75.6 percent). However, based on three-year-ahead earnings in TECH, CFO was the only significant past financial performance plus three control variables including SIZE, GROWTH, and RISK (72.0 percent).

Table 4.102 The ability of past financial performance to predict one-year-ahead earnings and cash flows

	Ability to predict future earnings					**Ability to predict future cash flows**				
	ZEARN	**ZCI**	**ZCFO**	**ZFCF**	**Mixed**	**ZEARN**	**ZCI**	**ZCFO**	**ZFCF**	**Mixed**
Predictability of past financial performance for one-year-ahead prediction										
POOL	**0.725**					0.526		**0.586**		
AGRO	**0.807**	0.775	0.653			**0.382**	0.359	0.332		
TECH	**0.680**					0.592		**0.690**	0.300	
Predictability of past financial performance with finance and non-finance factors for one-year-ahead prediction										
POOL	**0.741**	0.635				0.568	0.495	**0.595**	0.482	
AGRO	**0.803**	0.770	0.712			**0.378**	0.358	0.361	0.315	
TECH	**0.713**	0.594				0.686	0.602	**0.692**	0.581	
Predictability of combination of past financial performance for one-year-ahead prediction										
POOL	ZEARN, ZCI & ZCFO				**0.778**	ZCI, ZCFO & ZFCF				**0.673**
AGRO	ZEARN, ZCI, ZCFO & ZSIZE				**0.831**	ZEARN, ZCFO & ZFCF				**0.434**
TECH	ZEARN, ZCI & ZCFO				**0.759**	ZCI, ZCFO & ZFCF				**0.770**

Table 4.103 The ability of past financial performance to predict two-year-ahead earnings and cash flows

	Ability to predict future earnings					Ability to predict future cash flows				
	ZEARN	**ZCI**	**ZCFO**	**ZFCF**	**Mixed**	**ZEARN**	**ZCI**	**ZCFO**	**ZFCF**	**Mixed**
Predictability of past financial performance for two-year-ahead prediction										
POOL						0.466		**0.531**		
AGRO						0.377	**0.404**	0.356		
TECH	**0.618**							**0.597**		
Predictability of past financial performance with finance and non-finance factors for two-year-ahead prediction										
POOL						0.491		**0.603**	0.447	
AGRO						0.394	0.411	**0.425**		
TECH	0.607		**0.670**	0.524		0.531		**0.680**	0.550	
Predictability of combination of past financial performance for two-year-ahead prediction										
POOL						ZCI, ZCFO, ZFCF & AUDITC				**0.640**
AGRO						ZCI, ZCFO & ZFCF				**0.483**
TECH	ZEARN, ZCFO, ZFCF & ZRISK				**0.742**	ZCI, ZCFO, ZFCF & AUDITC				**0.709**

Table 4.104 The ability of past financial performance to predict three-year-ahead earnings and cash flows

	Ability to predict future earnings					Ability to predict future cash flows				
	ZEARN	**ZCI**	**ZCFO**	**ZFCF**	**Mixed**	**ZEARN**	**ZCI**	**ZCFO**	**ZFCF**	**Mixed**
Predictability of past financial performance for three-year-ahead prediction										
POOL	**0.485**					0.362		**0.575**	0.211	
AGRO	**0.694**					0.192	0.156		**0.198**	
TECH	**0.447**					0.356	0.056	**0.639**	0.206	
Predictability of past financial performance with finance and non-finance factors for three-year-ahead prediction										
POOL			**0.677**			0.418	0.471	**0.656**	0.593	
AGRO	**0.700**					0.214	0.200	0.198	**0.267**	
TECH		0.468	**0.714**	0.569		0.421	0.484	**0.719**	0.654	
Predictability of combination of past financial performance for three-year-ahead prediction										
POOL	ZCI, ZCFO, ZSIZE & IND				**0.683**	ZCI, ZCFO, FCF & ZSIZE				**0.697**
AGRO	ZEARN, ZCFO, ZFCF & ZSIZE				**0.756**	ZFCF & ZSIZE				**0.281**
TECH	ZCFO, ZSIZE, ZGROWTH & ZRISK				**0.720**	ZCI, ZCFO, ZFCF & ZSIZE				**0.755**

Table 4.105 The highest predictability models for future earnings in selected industry.

	POOL	**AGRO**	**TECH**
one-year-ahead	Combination past financial performances 77.8%	Combination past financial performances 83.1%	Combination past financial performances 75.9%
two-year-ahead	NA	NA	Combination past financial performances 70.9%
three-year-ahead	Combination past financial performances 68.3%	Combination past financial performances 75.6%	Combination past financial performances 72.0%

The overall results of future earnings prediction were presented in Table 4.48 and Table 4.105. The results showed that EARN was the best predictor and had the ability to predict for one-year-ahead earnings better than two and three-year-ahead earnings. It revealed that EARN (past financial performance) closely related to future earnings in short-term while the more lag of time made the decrease of the predictability. Even though the addition of financial and non-financial factors strengthened the predictability of past financial performance, the results stated that the combinations of past financial performance had the highest predictability in all selected industries and all lags of prediction year.

The final results of the hypothesis testing to investigate the best model to predict future firm performance were presented in Table 4.105. The findings showed that the appropriated predictability model for one-year-ahead earnings for each industry was the combination of past financial performances. The model for predicting one-year-ahead earnings in pooled industries (Adjusted R^2 = 77.8 percent) was presented as follows:

$$EARN_{t+1} = -0.023 + 0.429ZEARN_t + 0.156ZCI_t + 0.351ZCFO_t + e.$$

The appropriated prediction model for one-year-ahead earnings in Agro & Food Industry (Adjusted R^2 = 83.1 percent) was as follows:

$$EARN_{t+1} = -0.002 + 0.654ZEARN_t + 0.347ZCI_t + 0.188ZCFO_t - 0.180ZSIZE_t + e.$$

Furthermore, the appropriated model to predict one-year-ahead earnings in Technology Industry (Adjusted R^2 = 75.9 percent) was the combination of past financial performances as follows:

$$EARN_{t+1} = -0.061 + 0.328ZEARN_t + 0.177ZCI_t + 0.407ZCFO_t + e.$$

There was no suitable model for predicting two-year-ahead earnings in POOL and AGRO. Furthermore, the appropriated model to predict two-year-ahead earnings in Technology Industry (Adjusted R^2 = 70.9 percent) was the combination of past financial performances as follows:

$$EARN_{t+2} = -0.025 + 0.383ZEARN_t + 0.572ZCFO_t - 0.252ZFCF_t - 0.143ZRISK_t + e.$$

The model for predicting the three-year-ahead earnings in pooled industries (Adjusted R^2 = 68.3 percent) was presented as follow;

$$EARN_{t+3} = -0.135+0.203ZCI_t + 0.552ZCFO_t + 0.302ZSIZE_t + 0.0218IND_t + e.$$

The appropriated prediction model for three-year-ahead earnings in Agro & Food Industry (Adjusted R^2 = 75.6 percent) was as follows:

$$EARN_{t+3} = -0.134 + 1.211ZEARN_t + 0.379ZCFO_t - 0.182ZFCF_t - 0.350ZSIZE_t + e.$$

Furthermore, the appropriated model to predict three-year-ahead earnings in Technology Industry (Adjusted R^2 = 72.0 percent) was the combination of past financial performances as follows:

$$EARN_{t+3} = -0.035 + 0.588ZCFO_t + 0.456ZSIZE_t + 0.225ZGROWTH_t - 0.198ZRISK_t + e.$$

4.6.2 The Appropriated Model in Predicting Future Cash Flows

The results of the predictability for future cash flows in each industry were shown in Table 4.102 to 4.104. According to Table 4.102, the results showed that the best past financial performance for one-year-ahead cash flows prediction in AGRO was EARN (Adjusted R^2 = 38.2 percent) while the best ones in POOL and TECH were CFO at 58.6 percent and 69.0 percent, respectively. Even though adding control variables in the regression model, the results were still similar.

The highest predictability power for two-year-ahead cash flows in AGRO was CI at 40.4 percent while the best predictor in POOL and TECH was CFO at 53.1 percent and 59.7 percent, respectively. The effects of financial and non-financial factors strengthen the predictive value of CFO in all selected industries.

Considering the predictability of past financial performance for three-year-ahead cash flows, the results showed that the best predictor in AGRO was FCF (19.8 percent), but it seemed to be a very low predictability. As for TECH and POOL, the highest predictability value was CFO at 63.9 percent and 57.5 percent, respectively. The effects of financial and non-financial factors reflected the predictability of the same predictor but added a little increase of predictive power.

According to Table 4.102, the stepwise regression models for one-year-ahead cash flows prediction were presented. The results showed that the combination of past financial performances was appropriated for all lags of year. However, there were the different components in each year lag. One-year-ahead cash flows prediction model in all selected industries consisted of CFO and FCF. While EARN was included in the model in AGRO (43.4 percent), CI was the appropriated predictor in TECH (77.0 percent). None of control variables had a significant effect in all industries.

Regarding the notification of appropriated prediction model for two-year-ahead cash flows (Table 4.49), the results showed that the combination of CI, CFO, and FCF fit to all selected industries. By comparing the power of predictive value, it revealed that the models had better predictability in TECH (70.9 percent) than in AGRO (48.3 percent). Moreover, AUDITC had a significant effect in TECH and POOL.

Table 4.106 The highest predictability models for future cash flows in each industry.

	POOL	**AGRO**	**TECH**
one-year-ahead	Combination past financial performances 67.3%	Combination past financial performances 43.4%	Combination past financial performances 77.0%
two-year-ahead	Combination past financial performances 64.0%	Combination past financial performances 48.3%	Combination past financial performances 70.9%
three-year-ahead	Combination past financial performances 69.7%	Combination past financial performances 28.1%	Combination past financial performances 75.5%

Based on the prediction model of combination of past financial performances plus control variables (Table 4.104), the results showed that the combination of CI, CFO, and FCF plus SIZE was suitable for TECH (75.5 percent) and POOL (69.7 percent).

Meanwhile, the predictive value for three-year-ahead cash flows in AGRO was very low at 28.1 percent, and the appropriated predictors were FCF and SIZE.

The final results of the hypothesis testing to investigate the best model to predict future cash flows were presented in Table 4.106. The findings showed that the appropriated predictability model for one-year-ahead cash flows for each industry was the combination of past financial performances without the effects of control variables. The model for predicting one-year-ahead cash flows in pooled industries (Adjusted R^2 = 67.3 percent) was presented as follows:

$$CFO_{t+1} = 0.009 + 0.231ZCI_t + 0.976ZCFO_t - 0.414ZFCF_t + e.$$

The appropriated prediction model for one-year-ahead cash flows in Agro & Food Industry (Adjusted R^2 = 43.4 percent) was as follows:

$$CFO_{t+1} = -0.044 + 0.250ZEARN_t + 0.655ZCFO_t - 0.325ZFCF_t + e.$$

Furthermore, the appropriated model to predict one-year-ahead cash flows in Technology Industry (Adjusted R^2 = 64.0 percent) was the combination of past financial performances as follows:

$$CFO_{t+1} = 0.042 + 0.283ZCI_t + 0.974ZCFO_t - 0.313ZFCF_t + 0.770AUDITC_t + e.$$

The model for predicting two-year-ahead cash flows in pooled industries (Adjusted R^2 = 64.0 percent) was presented as follows:

$$CFO_{t+2} = -0.021+0.268ZCI_t + 0.771ZCFO_t - 0.912ZFCF_t + 0.297AUDITC_t + e.$$

The appropriated prediction model for two-year-ahead cash flows in Agro & Food Industry (Adjusted R^2 = 48.3 percent) was as follows:

$$CFO_{t+2} = -0.021 + 0.536ZCI_t + 0.563ZCFO_t - 0.187ZFCF_t + e.$$

Furthermore, the appropriated model to predict two-year-ahead cash flows in Technology Industry (Adjusted R^2 = 70.9 percent) was the combination of past financial performances as follows:

$$CFO_{t+2} = -0.046 + 0.236ZCI_t + 0.780ZCFO_t - 0.190ZFCF_t + 0.637AUDITC_t + e.$$

The model for predicting three-year-ahead cash flows in pooled industries (Adjusted R^2 = 69.7 percent) was presented as follows:

$$CFO_{t+3} = 0.000 - 0.226ZCI_t + 0.375ZCFO_t - 0.210ZFCF_t + 0.613ZSIZE_t + e.$$

The appropriated prediction model for three-year-ahead cash flows in Agro & Food Industry (Adjusted R^2 = 28.1 percent) was as follows:

$$CFO_{t+3} = -0.092 + 0.250ZFCF_t + 0.322ZCFO_t + e.$$

Furthermore, the appropriated model to predict three-year-ahead cash flows in Technology Industry (Adjusted R^2 = 75.5 percent) was the combination of past financial performances as follows:

$$CFO_{t+3} = -0.035 - 0.213ZCI_t + 0.418ZCFO_t + 0.208ZFCF_t + 0.621ZSIZE_t + e.$$

4.7 Out of Sample Testing

The previous part stated the testing of the predictability of past financial performance and control variables for future firm performances by using data from 2005 to 2010. The appropriated models were shown in Table 4.105 and 4.106, and this part discussed on the accuracy of the prediction.

Table 4.107 Comparison of the absolute mean error between in-sample and out-sample prediction on future earnings

In-sample absolute mean error						Out-sample absolute mean error						Diff. Abs. Mean Error
	N	Min	Max	Absolute Mean Error	Std. Dev.		N	Min	Max	Absolute Mean Error	Std. Dev.	
						POOL						
One-year-ahead	345	0.000	3.602	0.158	0.360	One-year-ahead	68	0.001	3.077	0.271	0.562	**0.114**
Two-year-ahead						Two-year-ahead						
Three-year-ahead	290	0.002	6.222	0.267	0.491	Three-year-ahead	68	0.012	3.332	0.282	0.538	**0.015**
						AGRO						
One-year-ahead	190	0.001	2.540	0.195	0.320	One-year-ahead	36	0.013	2.572	0.302	0.478	**0.107**
Two-year-ahead						Two-year-ahead						
Three-year-ahead	180	0.000	1.113	0.141	0.183	Three-year-ahead	36	0.023	2.026	0.206	0.347	**0.065**
						TECH						
One-year-ahead	155	0.001	2.492	0.162	0.327	One-year-ahead	32	.001	2.085	0.225	0.462	**0.062**
Two-year-ahead	148	0.001	4.639	0.284	0.524	Two-year-ahead	32	0.010	5.894	0.708	1.322	**0.424**
Three-year-ahead	110	-0.967	7.924	0.167	1.278	Three-year-ahead	32	0.026	2.482	0.333	0.546	**0.167**

The out-sample data collected from 2010 to 2011 were tested for the absolute mean error of the prediction and compared with the in-sample period. The results of the absolute mean error were shown in Table 4.107 and Table 4.108. By comparing between in-sample and out-sample mean error, the results showed that the absolute mean error of out-sample in all prediction models was greater than that of in-sample. The results of the differences were from the different periods of data as well as other factors such as economics, lifestyle, and product innovation.

Table 4.108 Comparison of the absolute mean error between in-sample and out-sample prediction on future cash flows

In-sample absolute mean error						Out-sample absolute mean error						Diff. Abs. Mean Error
	N	Min	Max	Absolute Mean Error	Std. Dev.		N	Min	Max	Absolute Mean Error	Std. Dev.	
POOL												
One-year-ahead	345	0.000	5.713	0.195	0.493	One-year-ahead	68	0.001	2.954	0.313	0.577	**0.119**
Two-year-ahead	336	0.000	6.128	0.237	0.547	Two-year-ahead	67	0.004	5.634	0.303	0.806	**0.066**
Three-year-ahead	290	0.000	4.420	0.252	0.489	Three-year-ahead	68	0.007	5.335	0.327	0.770	**0.075**
AGRO												
One-year-ahead	190	0.001	4.834	0.156	0.450	One-year-ahead	36	0.003	3.102	0.236	0.590	**0.079**
Two-year-ahead	188	0.001	4.746	0.194	0.474	Two-year-ahead	35	0.000	2.951	0.244	0.565	**0.050**
Three-year-ahead	180	0.000	2.155	0.187	0.318	Three-year-ahead	36	0.003	6.793	0.559	1.172	**0.372**
TECH												
One-year-ahead	155	0.003	5.558	0.251	0.506	One-year-ahead	32	.000	2.164	0.423	0.599	**0.172**
Two-year-ahead	148	0.001	5.930	0.298	0.596	Two-year-ahead	32	0.005	5.763	0.422	1.057	**0.123**
Three-year-ahead	110	-1.350	7.068	0.267	1.303	Three-year-ahead	32	0.004	1.917	0.267	0.477	**0.001**

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter restated the objectives of the study, methodology, conclusion, and discussion of the findings. In addition, the limitations of the study and recommendations were presented in this section.

This research aimed to investigate the effects of earnings, comprehensive income, operating cash flows, and free cash flows on future financial performance including future earnings and cash flows. In addition, other objectives were to investigate the effects of financial and non-financial factors on future financial performance and the appropriated model to predict future firm performance. Furthermore, the predictability of combination of past financial performance plus financial and non-financial factors on future financial performance was investigated.

This study was conducted to answer three research questions as follows:

1. Which factors have the ability to predict future firm performance of Thai listed companies in Agro & Food Industry and Technology Industry (earnings, comprehensive income, operating cash flows, and free cash flows)?;

2. Did the financial and non-financial factors have the effects on future firm performance in terms of future earnings and future cash flows?; and

3. Was the combination of past financial performance plus financial and non-financial performance appropriated to predict future firm performance?

The three hypotheses were formulated from these research questions as follows:

H1: Past financial performance has a predictive ability for future firm performance;

H2: Financial and non-financial factors have the effects on the predictability of future firm performance; and

H3: Combination of past financial performance has a predictive ability for future firm performance.

Data were collected from electronic financial statements disclosure on SET Trade website. The research focused on two industries including Agro & Food Industry and Technology industry. The prediction model of future firm performance was developed from the research of Barth et al. (2001). The hypotheses were tested using simple and multiple regression statistic method to investigate the ability of prediction of four independent variables (earnings, comprehensive income, operating cash flows, and free cash flows) and financial and non-financial factors. First of all, simple regression was applied to test the forecast ability of each of four independent variables: EARN, CI, CFO, and FCF. The second step was that multiple regression analysis was explored to estimate the future firm performance prediction models for one-, two-, and three-year-ahead. Hence, multiple regression analysis by stepwise method was applied to select significant variables affected to the prediction of future financial performance.

5.1 Conclusions

5.1.1 Descriptive statistics

The data had been collected from listed companies on SET in two industries for the periods from 2006 to 2010 for dependent variables and the periods from 2005 to

2010 for independent variables. The findings showed that mean of earnings before interest and tax (EARN) during the selected periods of Agro & Food Industry approximately ranged from 523 to 1,198 million Baht while that of Technology Industry was from 889 to 1,471 million Baht. The other type of earnings in this study, comprehensive income (CI) from 2005 to 2009 of Agro & Food Industry and Technology Industry, ranged from 301 to 779 million Baht and 216 to 735 million Baht, respectively. By comparing both types of earnings, the results showed that mean of earnings before interest and tax of Technology Industry were more than Agro & Food Industry whereas mean of comprehensive income of Agro & Food Industry was more than Technology Industry.

The performance measurements from cash flows stated in this study were divided into two kinds of cash flows: operating cash flows (CFO) and free cash flows (FCF). The results showed that mean of operating cash flows for the selected periods of Agro & Food Industry and Technology Industry ranged from 364 to 1,256 million Baht and 1,121 to 1,691 million Baht, respectively. Meanwhile, mean of free cash flows for the selected periods from 2005 to 2009 of Agro & Food Industry and Technology Industry ranged from -70 to 832 million Baht and -113 to 1,001 million Baht, respectively. Considering the amounts of cash flows, the findings showed that Technology Industry generated larger amounts of cash flows than Agro & Food Industry.

Considering SIZE transformed in natural logarithm from firm market value for one, two, and three lags of year, the mean of SIZE of Agro & Food Industry ranged

from 20.94 to 21.51 while that of Technology Industry ranged from 21.34 to 21. 92. It revealed that the sizes of both industries were not much different.

Regarding GROWTH, measured from the difference of total assets, the data showed the proportion change of total assets. The findings of mean of each year for the selected periods showed that the proportion change of total assets of Agro & Food Industry ranged from 1 to 87 percent while Technology Industry had the proportion change of total assets ranged from 0 to 13 percent. This indicated that the growth of total assets of listed companies in Agro & Food Industry increased more than that in Technology Industry.

Due to the RISK variable appraised from beta calculated by SET for the study period, the mean of RISK in Agro & Food Industry and Technology Industry ranged from 0.27 to 0.42 and 0.61 to 0.78, respectively.

The results of the quality of auditors, BIG4 audit firm and change in audit firm, showed that approximately 75 to 77 percent of listed companies in Agro & Food Industry chose BIG4 audit firm for one, two, and three lags of year while approximately 70 to 77 percent of listed companies in Technology Industry selected BIG4 audit firm. According to notification of changing audit firms, it revealed that Agro & Food Industry changed audit firm for approximately 7 percent per year while Technology Industry changed audit firm ranging from 3 to 18 percent per year. By comparing the auditor quality, the results showed that listed companies in Technology Industry tended to change their audit firms to non-Big 4 audit firms whereas listed companies in Agro & Food Industry were likely to change the audit firms, but they still selected from Big 4 audit firms.

5.1.2 Hypothesis testing for the predictive value of past financial performances

Table 5.1 showed the results of regression statistic testing for the predictive value of past financial performance to predict one, two and three-year-ahead of firms' performance. The one-year-ahead earnings prediction in Agro & Food Industry, Technology Industry and pooled industry was earnings itself (H1.1.1). In addition, comprehensive income and operating cash flows also had the predictability power for one-year-ahead earnings prediction in Agro & Food Industry (H1.1.2 and H1.1.3). Furthermore, due to Technology Industry and pooled industries, there was only earnings properly predictor while the other past financial performances were not appropriated to predict future earnings by using regression statistic method.

The results of hypothesis testing for the predictability of past financial performance for two-year-ahead earnings were shown in Table 5.1 (H1.2.1, H1.2.2, H1.2.3, and H1.2.4). The findings showed that earnings were the only one variable appropriated to predict two-year-ahead earnings in Technology Industry (H1.2.1). Regarding notification of the predictability of comprehensive income, operating cash flows, and free cash flows, the results revealed that they were not appropriated for the predictability for two-year-ahead earnings in both selected industries (H1.2.2, H1.2.3, and H1.2.4).

According to the findings of the predictability of past financial performance for three-year-ahead earnings, only earnings had the predictability for future three-year-ahead earnings in both selected industries (H1.3.1). Meanwhile, the rest past financial performances including comprehensive income, operating cash flows, and free cash

flows were not appropriated to predict future three-year-ahead earnings in selected industries (H1.3.2, H1.3.3, and H1.3.4). Even though the results showed the high predictive value, they did not meet the regression conditions due to autocorrelation problem.

Table 5.1 Summary of the hypothesis testing for the predictability of past financial performance

Hypothesis	Description	Predictability (Adj. R^2) Industry		
		POOL	**AGRO**	**TECH**
H1	**Past financial performances have the predictive ability for future firm performances.**			
H1.1	**Past financial performances have the predictability for one-year-ahead earnings, divided into four sub hypotheses as follows:**			
H1.1.1	$EARN_t$ has the predictive ability for one-year-ahead earnings.	**0.725**	**0.807**	**0.680**
H1.1.2	CI_t has the predictive ability for one-year-ahead earnings.	-	0.775	-
H1.1.3	CFO_t has the predictive ability for one-year-ahead earnings.	-	0.653	-
H1.1.4	FCF_t has the predictive ability for one-year-ahead earnings.	-	-	-
H1.2	**Past financial performances have the predictability for two-year-ahead earnings, divided into four sub hypotheses as follows:**			
H1.2.1	$EARN_t$ has the predictive ability for two-year-ahead earnings.	-	-	**0.618**
H1.2.2	CI_t has the predictive ability for two-year-ahead earnings.	-	-	-
H1.2.3	CFO_t has the predictive ability for two-year-ahead earnings.	-	-	-
H1.2.4	FCF_t has the predictive ability for two-year-ahead earnings.	-	-	-
H1.3	**Past financial performances have the predictability for three-year-ahead earnings, divided into four sub hypotheses as follows:**			
H1.3.1	$EARN_t$ has the predictive ability for three-year-ahead earnings.	**0.485**	**0.694**	**0.447**

Table 5.1 Summary of the hypothesis testing for the predictability of past financial performance (Cont.)

Hypothesis	Description	Predictability (Adj. R^2) Industry		
		POOL	**AGRO**	**TECH**
H1.3.2	CI_t has the predictive ability for three-year-ahead earnings.	-	-	-
H1.3.3	CFO_t has the predictive ability for three-year-ahead earnings.	-	-	-
H1.3.4	FCF_t has the predictive ability for three-year-ahead earnings.	-	-	-
H1.4	**Past financial performances have the predictability for one-year-ahead cash flows, divided into four sub hypotheses as follows:**			
H1.4.1	$EARN_t$ has the predictive ability for one-year-ahead cash flows.	0.526	**0.382**	0.592
H1.4.2	CI_t has the predictive ability for one-year-ahead cash flows.		0.359	
H1.4.3	CFO_t has the predictive ability for one-year-ahead cash flows.	**0.586**	0.332	**0.690**
H1.4.4	FCF_t has the predictive ability for one-year-ahead cash flows.	-	-	0.300
H1.5	**Past financial performances have the predictability for two-year-ahead cash flows.**			
H1.5.1	$EARN_t$ has the predictive ability for two-year-ahead cash flows.	0.466	0.377	-
H1.5.2	CI_t has the predictive ability for two-year-ahead cash flows.	-	**0.404**	-
H1.5.3	CFO_t has the predictive ability for two-year-ahead cash flows.	**0.531**	0.356	**0.597**
H1.5.4	FCF_t has the predictive ability for two-year-ahead cash flows.	-	-	-
H1.6	**Past financial performances have the predictability for three-year-ahead cash flows**			
H1.6.1	$EARN_t$ has the predictive ability for three-year-ahead cash flows.	0.362	0.192	0.356
H1.6.2	CI_t has the predictive ability for three-year-ahead cash flows.	-	0.156	0.056
H1.6.3	CFO_t has the predictive ability for three-year-ahead cash flows.	**0.575**	-	**0.639**
H1.6.4	FCF_t has the predictive ability for three-year-ahead cash flows.	0.211	**0.198**	0.206

Note: The highest predictability in each industry and year of prediction were presented in bold

The predictive values of past financial performances for one, two and three-year-ahead cash flows were shown in Table 5.1 (H1.4, H1.5, and H1.6). For one-year-ahead cash flows predicting, past earnings and operating cash flows had the predictability to forecast future cash flows in all selected industries (H1.4.1 and H1.4.3) while comprehensive income had the predictability only in Agro & Food Industry (H1.4.2) and free cash flows had the predictability in Technology Industry (H1.4.4). Furthermore, based on the highest predictability of each past financial performance, it revealed that earnings was the highest predictive value in Agro & Food Industry (H1.4.1); in contrast, operating cash flows was the highest predictive value to predict one-year-ahead cash flows in pooled industries and Technology Industry (H1.4.3).

Regarding investigation of the predictive value of past financial performances for two-year-ahead cash flows under regression method, it showed that earnings had the predictive ability in Agro & Food Industry and pooled industries (H1.5.1). On the other hand, comprehensive income had the predictability for two-year-ahead cash flows in only Agro & Food Industry (H1.5.2). The results also revealed that operating cash flows had the predictability for two-year-ahead cash flows in all selected industries (H1.5.3) while free cash flows was not appropriated to predict two-year-ahead cash flows (H1.5.4). Considering the highest predictive value of each industry, the results revealed that comprehensive income was the highest predictive value in Agro & Food industries while operating cash flow was the highest predictive ability in Technology Industry and pooled industries.

The predictability of past financial performances for three-year-ahead cash flows was shown in Table 5.1 (H1.6.1, H1.6.2, H1.6.3, and H1.6.4). The results showed that

operating cash flows had the highest ability to predict three-year-ahead cash flows in Technology Industry and pooled industries. The rest past financial performances also had the predictability but stated in the low level. Hence, comprehensive income and free cash flows did not have appropriated ability to predict three-year-ahead cash flows under this statistic method.

Considering the predictability for future cash flows in each industry, it showed that earnings was the highest predictability in Agro & Food Industry for one, two-year-ahead cash flows. Otherwise, there was no appropriate predictor for three-year-ahead earnings due to the low predictive value.

Focusing on Technology Industry, the results showed that operating cash flows was the highest predictive value for one, two and three-year-ahead cash flows. While, in pooled industry operating cash flows was the highest predictive value for one, two and three-year-ahead cash flows associated with Technology Industry.

5.1.3 Hypothesis testing for the effects of financial and non-financial factors

Table 5.2 showed the results of hypothesis testing for the effects of financial and non-financial factors on future firm performance (H2.1, H2.2, and H2.3). According to Table 5.2, the predictability of earnings (H2.1.1) and comprehensive income (H2.1.2) plus financial and non-financial factors were appropriated for one-year-ahead earnings in all selected industries. In addition, operating cash flows plus financial and non-financial factors were appropriated for one-year-ahead earnings only in Agro & Food Industry. Due to notification of free cash flows, the results showed that free cash flows was not suitable for one-year-ahead earnings in all selected industries.

According to two-year-ahead earnings prediction, the results revealed that under regression statistic method it was suitable for Technology Industry (H2.2.1, H2.2.2, H2.2.3, and H2.2.4). Therefore, financial and non-financial factors strengthened the predictability of earnings, operating cash flows, and free cash flows for two-year-ahead earnings prediction whereas the highest predictability was operating cash flows plus financial and non-financial factors (H2.2.3).

Table 5.2 Summary of the hypothesis testing for the effects of financial and non-financial factors on the predictability of past financial performance

Hypothesis	Description	Predictability (Adj. R^2) Industry		
		POOL	**AGRO**	**TECH**
H2	**Financial and non-financial factors have the effects on the predictability of future firm performances.**			
H2.1	**Financial and non-financial factors have the effects on the predictability for one-year-ahead earnings**			
H2.1.1	Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for one-year-ahead earnings.	**0.741**	**0.80**3	**0.713**
H2.1.2	Financial and non-financial factors have the effects on the predictive ability of CI_t for one-year-ahead earnings.	0.635	0.770	0.594
H2.1.3	Financial and non-financial factors have the effects on the predictive ability of CFO_t for one-year-ahead earnings.	-	0.712	-
H2.1.4	Financial and non-financial factors have the effects on the predictive ability of FCF_t for one-year-ahead earnings.	-	-	-
H2.2	**Financial and non-financial factors have the effects on the predictability for two-year-ahead earnings.**			
H2.2.1	Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for two-year-ahead earnings.	-	-	0.607
H2.2.2	Financial and non-financial factors have the effects on the predictive ability of CI_t for two-year-ahead earnings.	-	-	-

Table 5.2 Summary of the hypothesis testing for the effects of financial and non-financial factors on the predictability of past financial performance (Cont.)

Hypothesis	Description	Predictability (Adj. R^2) Industry		
		POOL	**AGRO**	**TECH**
H2.2.3	Financial and non-financial factors have the effects on the predictive ability of CFO_t for two-year-ahead earnings.	-	-	**0.670**
H2.2.4	Financial and non-financial factors have the effects on the predictive ability of FCF_t for two-year-ahead earnings.	-	-	0.524
H2.3	**Financial and non-financial factors have the effects on the predictability for three-year-ahead earnings.**			
H2.3.1	Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for three-year-ahead earnings.	-	**0.700**	-
H2.3.2	Financial and non-financial factors have the effects on the predictive ability of CI_t for three-year-ahead earnings.	-	-	0.468
H2.3.3	Financial and non-financial factors have the effects on the predictive ability of CFO_t for three-year-ahead earnings.	**0.677**	-	**0.714**
H2.3.4	Financial and non-financial factors have the effects on the predictive ability of FCF_t for three-year-ahead earnings.	-	-	0.569
H2.4	**Financial and non-financial factors have the effects on the predictability for one-year-ahead cash flows.**			
H2.4.1	Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for one-year-ahead cash flows.	0.568	**0.378**	0.686
H2.4.2	Financial and non-financial factors have the effects on the predictive ability of CI_t for one-year-ahead cash flows.	0.495	0.358	0.602
H2.4.3	Financial and non-financial factors have the effects on the predictive ability of CFO_t for one-year-ahead cash flows.	**0.595**	0.361	**0.692**
H2.4.4	Financial and non-financial factors have the effects on the predictive ability of FCF_t for one-year-ahead cash flows.	0.482	0.315	0.581

Table 5.2 Summary of the hypothesis testing for the effects of financial and non-financial factors on the predictability of past financial performance (Cont.)

Hypothesis	Description	Predictability (Adj. R^2) Industry		
		POOL	**AGRO**	**TECH**
H2.5	**Financial and non-financial factors have the effects on the predictability for two-year-ahead cash flows**			
H2.5.1	Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for two-year-ahead cash flows.	0.491	0.394	0.531
H2.5.2	Financial and non-financial factors have the effects on the predictive ability of CI_t for two-year-ahead cash flows.	-	0.411	-
H2.5.3	Financial and non-financial factors have the effects on the predictive ability of CFO_t for two-year-ahead cash flows.	**0.603**	**0.425**	**0.680**
H2.5.4	Financial and non-financial factors have the effects on the predictive ability of FCF_t for two-year-ahead cash flows.	0.447	-	0.550
H2.6	**Financial and non-financial factors have the effects on the predictability for three-year-ahead cash flows**			
H2.6.1	Financial and non-financial factors have the effects on the predictive ability of $EARN_t$ for three-year-ahead cash flows.	0.418	**0.214**	0.421
H2.6.2	Financial and non-financial factors have the effects on the predictive ability of CI_t for three-year-ahead cash flows.	0.471	0.200	0.484
H2.6.3	Financial and non-financial factors have the effects on the predictive ability of CFO_t for three-year-ahead cash flows.	**0.656**	0.198	**0.719**
H2.6.4	Financial and non-financial factors have the effects on the predictive ability of FCF_t for three-year-ahead cash flows.	0.593	0.267	0.654

The predictability of past financial performances and financial and non-financial factors for three-year-ahead earnings was shown in Table 5.2 (H2.3.1, H2.3.2, H2.3.3, and H2.3.4). The results showed that earnings was suitable only in Agro & Food Industry (H2.3.1). By focusing on Technology Industry, the other past financial

performances including comprehensive income, operating cash flows, and free cash flows with financial and non-financial factors had the ability to predict three-year-ahead earnings. However, the highest predictive value was operating cash flows. Furthermore, the model of operating cash flows plus financial and non-financial factors was the only one model suitable for pooled industries.

The investigation results of the predictability for future cash flows were shown in Table 5.2 (H2.4, H2.5, and H2.6). The results revealed that all past financial performances plus financial and non-financial factors had the ability to predict one and three-year-ahead cash flows in all selected industries. The highest predictive value for one-year-ahead cash flows prediction was operating cash flows in Technology Industry and earnings in Agro & Food Industry. However, earnings was the highest predictability in Agro & Food Industry but the predictive value stated in low level.

In addition, earnings and operating cash flows had the predictability for two-year-ahead cash flows in all selected industries (H2.5.1 and H2.5.3) while comprehensive income plus financial and non-financial factors had the suitable predictability for two-year-ahead cash flows in only Agro & Food Industry. Free cash flows had the predictive ability in Technology Industry and pooled industries.

In conclusion, the predictive values of past financial performances plus financial and non-financial factors were discussed as follows. Earnings had the highest ability to predict one-year-ahead earnings in all selected industries. The highest predictive value for two-year-ahead earnings in Technology Industry was operating cash flows whereas there was no past financial performance suitable for two-year-ahead earnings in Agro & Food Industry and pooled industries. Furthermore, the highest predictive value for

three-year-ahead earnings prediction in Agro & Food Industry was earnings. On the other hand, operating cash flows was the highest predictive value in Technology Industry and pooled industries.

5.1.4 Hypothesis testing for the predictability of the combination of past financial performances plus financial and non-financial factors

The results of hypothesis testing for the predictive ability of combination of past financial performances plus financial and non-financial factors were illustrated in Table 5.3. The regression statistical by stepwise method was applied to construct the appropriated model with the highest adjusted R^2 value.

Table 5.3 Summary of the hypothesis testing for the predictive value of the combination of past financial performances plus financial and non-financial factors on future earnings

Predictive value on future earnings			
Industry	**Time lag**	**Components of predictor**	**Adj. R^2**
POOL	One-year-ahead	ZEARN, ZCI & ZCFO	**0.778**
POOL	Two-year-ahead		
POOL	Three-year-ahead	ZCI, ZCFO, ZSIZE & IND	0.683
AGRO	One-year-ahead	ZEARN, ZCI, ZCFO & ZSIZE	**0.831**
AGRO	Two-year-ahead		
AGRO	Three-year-ahead	ZEARN, ZCFO, ZFCF & ZSIZE	0.756
TECH	One-year-ahead	ZEARN, ZCI & ZCFO	**0.759**
TECH	Two-year-ahead	ZEARN, ZCFO, ZFCF & ZRISK	0.742
TECH	Three-year-ahead	ZCFO, ZSIZE, ZGROWTH & ZRISK	0.720

Regarding the combination of past financial performances, the results stated that the predictive values were the highest ones in each industry compared with previous simple (Table 5.1) and multiple regression models (Table 5.2).

The findings showed that the predictive value of combination of past financial performances on future earnings stated in very high level (Table 5.3). Considering Agro & Food Industry, the predictive value was 83.1% for one-year-ahead earnings prediction and 75.6 percent for three-year-ahead earnings prediction. In contrast, as stated in the previous testing, the results revealed that two-year-ahead earnings could not be predicted by any past financial performances under regression statistical method due to autocorrelation problem.

On the other hand, the predictive values for future earnings in Technology Industry were 75.9 percent, 74.2 percent, and 72.0 percent for one, two, and three-year-ahead predictions, respectively.

The overall results showed that earnings was the best predictor and had the ability to predict for one-year-ahead earnings more than two and three-year-ahead earnings. It revealed that past earnings was closely related to future earnings in short-term, and the more lag of time made the predictive value decrease. It also revealed that an addition of financial and non-financial factors would strengthen the predictability of past financial performance.

Table 5.4 Summary of the hypothesis testing for the predictive value of the combination of past financial performances plus financial and non-financial factors on future cash flow

Predictive value on future cash flows			
Industry	**Time lag**	**Components of predictor**	**Adj. R^2**
POOL	One-year-ahead	ZCI, ZCFO & ZFCF	0.673
POOL	Two-year-ahead	ZCI, ZCFO, ZFCF & AUDITC	0.640
POOL	Three-year-ahead	ZCI, ZCFO, FCF & ZSIZE	**0.697**

Table 5.4 Summary of the hypothesis testing for the predictive value of the combination of past financial performances plus financial and non-financial factors on future cash flow (Cont.)

Predictive value on future cash flows			
Industry	**Time lag**	**Components of predictor**	**Adj. R^2**
AGRO	One-year-ahead	ZEARN, ZCFO & ZFCF	0.434
AGRO	Two-year-ahead	ZCI, ZCFO & ZFCF	**0.483**
AGRO	Three-year-ahead	ZFCF & ZSIZE	0.281
TECH	One-year-ahead	ZCI, ZCFO & ZFCF	**0.770**
TECH	Two-year-ahead	ZCI, ZCFO, ZFCF & AUDITC	0.709
TECH	Three-year-ahead	ZCI, ZCFO, ZFCF & ZSIZE	0.755

The predictive values of combination of past financial performance on future cash flows were shown in Table 5.4. The results showed that the predictive value in Technology Industry stated at high level for all lags of time. The highest predictive value was for one-year-ahead cash flows prediction. Considering the components of past financial performances predictors, the results showed that comprehensive income, operating cash flows, and free cash flows were the suitable predictors for all lags of time.

5.1.5 The appropriated model to predict future firms performance

The investigation results of the appropriated model to predict future firm performance were presented in Table 5.3 and Table 5.4 compared with Table 5.1 and Table 5.2. The findings showed that the appropriated prediction models for one-year-ahead earnings for each industry were the combinations of past financial performances. The model for predicting the one-year-ahead earnings in pooled industries (Adjusted R^2 = 77.8 percent) was presented as follows:

$$EARN_{t+1} = -0.023 + 0.429ZEARN_t + 0.156ZCI_t + 0.351ZCFO_t + e.$$

The appropriated prediction model for one-year-ahead earnings in Agro & Food Industry (Adjusted R^2 = 83.1 percent) was as follows:

$$EARN_{t+1} = -0.002 + 0.654ZEARN_t + 0.347ZCI_t + 0.188ZCFO_t - 0.180ZSIZE_t + e.$$

Furthermore, the appropriated model to predict one-year-ahead earnings in Technology Industry (Adjusted R^2 = 75.9 percent) was the combination of past financial performances as follows:

$$EARN_{t+1} = -0.061 + 0.328ZEARN_t + 0.177ZCI_t + 0.407ZCFO_t + e.$$

There was no suitable model for predicting two-year-ahead earnings in pooled industries and Agro & Food Industry. Meanwhile, the appropriated model to predict two-year-ahead earnings in Technology Industry (Adjusted R^2 = 70.9 percent) was the combination of past financial performances as follows:

$$EARN_{t+2} = -0.025 + 0.383ZEARN_t + 0.572ZCFO_t - 0.252ZFCF_t - 0.143ZRISK_t + e.$$

The appropriated prediction model for predicting three-year-ahead earnings in pooled industries (Adjusted R^2 = 68.3 percent) was presented as follows:

$$EARN_{t+3} = -0.135 + 0.203ZCI_t + 0.552ZCFO_t + 0.302ZSIZE_t + .0218IND_t + e.$$

The appropriated prediction model for three-year-ahead earnings in Agro & Food Industry (Adjusted R^2 = 75.6 percent) was as follows:

$$EARN_{t+3} = -0.134 + 1.211ZEARN_t + 0.379ZCFO_t - 0.182ZFCF_t - 0.350ZSIZE_t + e.$$

Furthermore, the appropriated model to predict three-year-ahead earnings in Technology Industry (Adjusted R^2 = 72.0 percent) was the combination of past financial performances as follows:

$$EARN_{t+3} = -0.035 + 0.588ZCFO_t + 0.456ZSIZE_t + 0.225ZGROWTH_t – 0.198ZRISK_t + e.$$

According to Table 5.4, the stepwise regression models for one-year-ahead cash flows prediction were presented. The results showed that the combination of past financial performances was appropriated for all lags of year. Nonetheless, the different components in each year lag were revealed. The one-year-ahead cash flows prediction model in all selected industries consisted of operating cash flows and free cash flows. Moreover, earnings was the appropriated predictor in Agro & Food Industry (43.4 percent) whereas comprehensive income was the appropriated predictor in Technology Industry (77.0 percent). No control variables had significant effects in all industries.

Due to notification of the appropriated prediction model for two-year-ahead cash flows (Table 5.4), the results showed that the combination of comprehensive income, operating cash flows, and free cash flows fit for all selected industries. Comparing the power of predictive value, it revealed that the models had better predictability in Technology Industry (70.9 percent) than in Agro & Food Industry (48.3 percent). In addition, auditor change of firm had a significant effect in Technology Industry and pooled industries.

Considering the prediction model of combination of past financial performances plus control variables (Table 5.4), the results showed that the combination of CI, CFO, and FCF plus SIZE was suitable for Technology Industry (75.5 percent) and pooled industries (69.7 percent). Meanwhile, according to Agro & Food Industry, the predictive value for three-year-ahead cash flows was very low at 28.1 percent, and the appropriated predictors were FCF and SIZE.

The final results of the hypothesis testing to investigate the appropriated model to predict future cash flows were presented in Table 5.4. The findings showed that the appropriated prediction model for one-year-ahead cash flows for each industry was the combination of past financial performances, and there was no effect of control variables. The prediction model for predicting one-year-ahead cash flows in pooled industries (Adjusted R^2 = 67.3 percent) was presented as follows:

$$CFO_{t+1} = 0.009 + 0.231ZCI_t + 0.976ZCFO_t - 0.414ZFCF_t + e.$$

The appropriated prediction model for one-year-ahead cash flows in Agro & Food Industry (Adjusted R^2 = 43.4 percent) was shown as follows:

$$CFO_{t+1} = -0.044 + 0.250ZEARN_t + 0.655ZCFO_t - 0.325ZFCF_t + e.$$

Furthermore, the appropriated model to predict one-year-ahead cash flows in Technology Industry (Adjusted R^2 = 64.0 percent) was the combination of past financial performances as follows:

$$CFO_{t+1} = 0.042 + 0.283ZCI_t + 0.974ZCFO_t - 0.313ZFCF_t + 0.770AUDITC_t + e.$$

The model for predicting two-year-ahead cash flows in pooled industries (Adjusted R^2 = 64.0 percent) was presented as follows:

$$CFO_{t+2} = -0.021+0.268ZCI_t + 0.771ZCFO_t - 0.912ZFCF_t + 0.297AUDITC_t + e.$$

The appropriated prediction model for two-year-ahead cash flows in Agro & Food Industry (Adjusted R^2 = 48.3 percent) was presented as follows:

$$CFO_{t+2} = -0.021 + 0.536ZCI_t + 0.563ZCFO_t - 0.187ZFCF_t + e.$$

Moreover, the appropriated model to predict two-year-ahead cash flows in Technology Industry (Adjusted R^2 = 70.9 percent) was the combination of past financial performances as follows:

$$CFO_{t+2} = -0.046+0.236ZCI_t + 0.780ZCFO_t - 0.190ZFCF_t + 0.637AUDITC_t + e.$$

The model for predicting three-year-ahead cash flows in pooled industries (Adjusted R^2 = 69.7 percent) was presented as follows:

$$CFO_{t+3} = 0.000 - 0.226ZCI_t + 0.375ZCFO_t - 0.210ZFCF_t + 0.613ZSIZE_t + e.$$

The appropriated prediction model for three-year-ahead cash flows in Agro & Food Industry (Adjusted R^2 = 28.1 percent) was shown as follows:

$$CFO_{t+3} = -0.092 + 0.250ZFCF_t + 0.322ZCFO_t + e.$$

Besides, the appropriated model to predict three-year-ahead cash flows in Technology Industry (Adjusted R^2 = 75.5 percent) was the combination of past financial performances as follows:

$$CFO_{t+3} = -0.035 - 0.213ZCI_t + 0.418ZCFO_t + 0.208ZFCF_t + 0.621ZSIZE_t + e.$$

5.2 Discussions of the Findings

5.2.1 Predictive value of past earnings and past cash flows on future earnings

This study revealed that both past earnings and past cash flows had the ability to predict future firm performance. Regarding notification of separate industry, it revealed that earnings had the highest predictive value in one-year-ahead earnings prediction in Technology Industry. The more lag of time prediction, the more predictive value decrease. SIPA and NECTEC (2009) also mentioned that the uncertainty of environment and change of technology resulted in changing consumer behavior.

On the other hand, in Agro & Food Industry, earnings also had the highest predictability on one-year-ahead earnings prediction, and the predictive value declined on three-year-ahead prediction. Meanwhile, two-year-ahead prediction did not match with regression statistic method caused from the nature of the industry which depended on uncontrollable factors such as environment factor (global warming), global economic crisis, and so on. Those factors affected price and cost of products which reflected to firms' earnings (The Office of Industrial Economics, 2009).

Due to the predictability for future cash flows in each industry, it showed that earnings was the highest predictability for one, two-year-ahead cash flows in Agro & Food Industry. Besides, there was no appropriated predictor for three-year-ahead earnings due to the low predictive value. The future cash flows in Agro & Food Industry reflected from earnings due to the price of Agro & Food products depended on global economy and demand and supply while cost of products depended on global climate (The Office of Industrial Economics, 2009). These factors reflected earnings as well as operating cash flows.

Considering Technology Industry, the results showed that operating cash flows was the highest predictive value for one, two, and three-year-ahead cash flows. Meanwhile, operating cash flows was the highest predictive value for one, two and three-year-ahead cash flows in pooled industry associated with Technology Industry. Therefore, Technology Industry invested in huge capital expenditure resulting in depreciation expenses in income statement. In addition, accrual earnings had less predictive value than operating cash flows itself.

However, there were differences of the predictability for future earnings and future cash flows predictions based on selected industries and time lags. Considering the future earnings prediction, the highest predictive value among the predictors in this study was past earnings. The past earnings had the highest predictive value for one-year-ahead future earnings prediction, and it decreased for two and three-year-ahead predictions. This result supported the finding of Kanagaretnam et al. (2009) stating that income was better indicator of future income than comprehensive income. In addition, it also confirmed the finding of Dhaliwal et al. (1999) that there was no evidence that comprehensive income had better predict future earnings than past operating income.

On the other hand, the results showed that operating cash flows had the ability to predict one-year-ahead earnings. The predictability of operating cash flows in Agro & Food Industry was ranked in the third sequence while free cash flows was irrelevant to future earnings. It also confirmed the findings of Greenberg et al. (1986) that earnings had better ability to predict future earnings than operating cash flows.

In Technology Industry, operating cash flows was not relevant to future earnings. The results of the study supported the finding of Daraghma (2013) that earnings had predictability while operating cash flows had irrelevance.

In contrast, some previous researches stated that past operating cash flows had better ability to predict future earnings than past earnings (Arthur et al., 2010), but the results in this study showed that past earnings was a better predictor than operating cash flows.

On the other hand, future cash flows prediction in Agro & Food Industry showed the predictive value which was less than that in Technology Industry. The predictive value for one and two-year-ahead cash flows predictions were stated at moderate level while the predictive value for three-year-ahead cash flows prediction was only 28.1 percent.

Due to notification of the components of past financial performances, it revealed that operating cash flows and free cash flows were associated with future cash flows in one and two-year-ahead. In addition, earnings was the part of one-year-ahead prediction, but comprehensive income was the other suitable predictor for two-year-ahead cash flows.

In conclusion, the different results of two industries were revealed. In Technology Industry, the predictive value of past financial performance on future cash flows was rather high caused from the life cycle of the industry contain in maturity (Pepper, 2012). The big companies in this industry tried to maintain the performance to long-term sustainability. In contrast, Agro & Food Industry faced the uncontrollable factors to maintain future firm performances and needed to plan for risk management

while increasing productivity of agriculture products (The Office of Industrial Economics, 2009).

Regarding notification of the predictability of free cash flows, the results showed that free cash flows was not appropriated to predict future earnings. The results were different from the findings of Nunez (2013), which claimed that there was no relative difference among the predictability of free cash flows, operating cash flows, and net income. Nevertheless, free cash flows was mentioned for the relevance to future performance, and free cash flows would reflect profitability (McLaughlin et al., 1996), while this research found the opposite results that there was no relevance with future earnings.

By concentrating on the industry, the results revealed that financial and non-financial factors strengthened earnings to the highest predictive value in Agro & Food Industry for both one and three-year-ahead earnings predictions while there was no past financial and non-financial factors suitable for two-year-ahead earnings prediction. Regarding Technology Industry, earnings had the highest predictive value for one-year-ahead earnings while operating cash flows had the highest predictability for two and three-year-ahead earnings.

According to notification of future cash flows prediction, it showed that operating cash flows had the highest predictive value for one, two, and three-year-ahead cash flows predictions in Technology Industry and pooled industries. By the way, the predictive value of past financial performance for future cash flows in Agro & Food Industry stated at lower value than the other industries. The results were consistent with simple regression in previous part.

5.2.2 Predictive value of past earnings and past cash flows for future cash flows

The results of testing the predictability of past earnings and past cash flows for future cash flows were different in selected industries. In Technology Industry, operating cash flows had the highest predictive value for one, two, and three-year-ahead cash flows. The results support the most prior findings, including Bowen et al. (1987), Finger (1994), Barth et al. (2001), Al-Attar and Hussain (2004), Seng (2006), Farshadfar et al. (2008), Telmoudi et al. (2010), and Takhtaei and Karimi (2013), that past operating cash flows had more predictive ability for future cash flows than past earnings.

On the other hand, the findings in Agro & Food Industry provided the opposite results that past earning was superior to past cash flows for one-year-ahead prediction. Comprehensive income had the highest predictive value for two-year-ahead prediction. Nevertheless, the predictive values of all past financial performances were in very low level. It supported the evidences of Grennberg et al. (1986), Murdoch and Krause (1990), Arnold et al. (1991), Dechow (1994), Dechow et al. (1998), Kim and Kross (2005), and Moeinaddin et al. (2012), which stated that earnings had more predictability than cash flows.

Considering of the mentions of IASB (2010) that cash flows was a tool for assessing future operating firm performance due to the elimination effect of different accounting policies, the results of this research arose in the same direction only in Technology Industry. In contrast, earnings had more predictive ability than cash flows in Agro & Food Industry.

5.2.3 The effect of financial and non-financial on the predictability of past financial performance

Previous researches investigated the power of financial and non-financial on the ability to predict future firm performance such as size, audit quality, growth, and risk. Regarding the study in the listed company in Agro & Food industry and Technology Industry in the Stock Exchange of Thailand, the results showed that some factors had the effects on the predictability.

The contingency theory stated that firm size may affect the management system and organization control (Epstein, 2004). This study found that size was the significant factor in the prediction model with positive sign in Technology Industry. This was consistent with previous research that firm size was a significant effect on the future performance of organization. It was to confirm the various researches that different firm sizes related to different operations (Epstein, 2004; Ohlson, 1980; Bamber, 1987; Barth et al., 1999; Charitou et al., 2001; Shivakumar, 2006; Da & Warachka, 2009). However, size was significant in Agro & Food Industry in the model predicted with cash flows only. The findings stated that market value affected future earnings and future cash flows in Technology Industry. In contrast, market value of equity had no significant effect on the predictive value for future earnings in Agro & Food Industry.

Market risk was the next factor which significantly affected the prediction models, and it revealed that the effects of market risk were on the prediction model in Technology Industry, especially the past earnings prediction models with positive sign. It was consistent with the previous findings of Neely (2007) and Blitz et al. (2011) that higher market risk had a relationship with accounting measurement. By comparing

between two industries, the fasten changes in Hi-technology in Technology (SIPA & NECTEC, 2010) influence to higher risk in Technology Industry.

The last factor influencing the predictability of past financial performances was auditor change. Chung et al. (2003, 2005) mentioned that the quality of auditor had affected cash flows management to finally decrease agency cost. In this research, auditor change reflected only three models in Technology Industry, so it could not absolutely conclude the effect of auditor change to overall results. However, the descriptive data showed that listed companies in Technology Industry changed audit firms in the recent year in high volumes than the earlier. Meanwhile, BIG4 audit firm did not affect any models in both industries. The results were inconsistent with the prior researchers who stated that firms perceived that BIG4 had more conservative and caution than non-BIG4 (Francis et al., 1999; St. Pierre & Anderson, 1984). In other words, it could claim that listed companies in Technology and Agro & Food Industries in SET perceived no difference between the quality of BIG4 and non-BIG4 audit firms in Thailand.

Previous research found that growth proxy related to firms' performance and future profitability. Barth et al. (1999) and Charitou et al. (2001) found that growth rate of firms should influence performance, and huge or little growth rate should make different impacts. The researches of Fairfield et al. (2003), Richardson et al. (2005), Cooper et al. (2008), and Cao (2011) stated that total asset growth rate has the implication for future profitability. Consequently, the research findings showed no evidence to confirm the prior findings.

5.3 Limitation of the Study

Based on notification of this study, data were collected from financial statements disclosed in the Stock Exchange of Thailand. Therefore, the disclosure information among listed companies selected in this research was not consistent with other non-listed companies.

Regarding the period of study from 2005 to 2010, there was economic crisis in the United States of America from 2007 to 2009, and this situation might have affected some companies in selected industries, especially the import-export companies. Hence, the predictive value and prediction model might be adjusted before applying to predict in different periods.

During the selected periods, changes in the accounting policy in some years could cause the different of values recognized in each company. In addition, the accounting policy in each company should be different among selected companies upon the appropriated selection by managing respondents. Due to consequence of the declaration of the new accounting standard, it shall affect the predictability of accounting information.

The statistic methodology in this study was regression statistic method; however, some models were not conformed to the conditions of regression even though there were high relations with the dependent variables. According to the mismatch to the regression statistic conditions, those models were excluded from the research findings.

5.4 Implications and Recommendations

The results of this study confirmed that past financial performances are useful for future performance prediction. However, the different predictive value of each past financial performance is associated with time period and type of industry.

5.4.1 Usefulness for Accounting Standard setting organization

The results of this research confirm that past financial performances are suitable for predicting future firm performances. The different past financial performances are appropriated to different types operations, and this research focuses on Agro & Food Industry and Technology Industry.

The findings from this research show that earnings before tax and interest or operating income are more appropriated to predict future earnings than comprehensive income. This should reflect accounting organizations that whether the statement of comprehensive income has an advantage to financial users.

According to the mention of IASB (2010) that cash flows is a tool for assessing future operating firm performance due to the elimination effect of different accounting policies, it could not be claimed in all industries. The findings of this study show that past cash flows was not appropriated for future earnings prediction. Although past cash flows is suitable for future cash flows prediction in Technology Industry, it does not fit in Agro & Food Industry.

The findings reveal that free cash flows is one of the variables to predict future firm performance, but there are many definitions of free cash flows, and there is no organization announcing the appropriated meaning of them. The need to define and disclose free cash flows for users shall be considered.

5.4.2 Usefulness for the Stock Exchange of Thailand

The findings reveal that firm size, in a term of market value of equity, is an important factor affecting the ability to predict future firm performance. Market risk is another significant factor affecting the predictability of past financial performance. Based on notification of the two significant factors, this information is distributed by SET. However, the missing data occur in many listed companies in Technology industries, especially market risk (beta), and it should be meaningful for the users if the completed data are available.

In addition, the past financial performance study in this research had predictive value for future earnings and cash flows prediction. SET could provide the past financial performances by disclosing them.

5.4.3 Usefulness for Financial Analyst

The financial analyst is the person who is involving in future performance prediction, and the study stated that the suitable predictive value of past financial performances for future earnings and cash flows are different. Furthermore, the predictive value is also distinguished in each type of industries. Consequently, the financial analysts could choose the appropriated variable to forecast future performance, and it should reflect the people who use their recommendations.

5.4.4 Usefulness for Investor and Manager

The future firm performance prediction should be helpful for economic decision making. For instance, internal purpose manager could forecast and prepare strategy for organizational sustainability while investors could appraise risks of their investments. According to the research findings, they show the different abilities of past earnings and

past cash flows to predict future firm performances in Agro & Food Industry and Technology Industry. The evidences from the study suggest that future firm performance prediction in each industry is done by using appropriated past financial performances. The appropriated predictors shall be investigated in other industries to be useful in planning and decision making.

5.5 Future Research

Considering the consequences of the different predictive values in different industries, the recommendations for future research are to investigate the prediction model with appropriated past financial performance (earnings or cash flows) in other industries and non-listed companies.

According to the findings, for example, the uncontrollable factors had affected future firm performance in Agro & Food Industry. The future research should investigate the other variables which could affect the firms such as domestic and global economics.

For internal management purpose, some information such as innovation expenses and research and development expenses were not disclosed for external user, which could affect future performance. The research could be conducted to formulate the prediction model for internal usage.

Due to the most statistics using in prior research, regression was frequently used. This research also selected regression statistic method; however, some evidences were not conformed to the conditions as the limitation of this study. The future research

could apply other statistic method for conducting the prediction model such as SEM which could investigate the direct and indirect effects.

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BIOGRAPHY

Name-Surname	Kusuma Dampitakse
Workplace	Faculty of Business Administration Rajamangala University of Technology Thanyaburi
Education Background	
1990	Master of Accountancy from Chulalongkorn University,
1982	Bachelor of Business Administration (Accounting) from Ramkhamhaeng University
Work Experiences	
1992-Present	Lecturer, Faculty of Business Administration, Rajamangala University of Technology Thanyaburi
1983-1992	Lecturer, Phranakhon Sri Ayutthaya Wasukri campus, Rajamangala Institute of Technology