CHAPTER 3

RESEARCH HYPOTHESIS AND DESIGN

3.1 Hypothesis Development

The many efforts and enforcements by standard setters and regulators to control for the presentation and disclosure of related party transactions indicate that related party transactions play an important role in Thai financial reporting. These efforts and enforcements can be described as follows.

Firstly, TAS 47, *Related Party Disclosures*, is one of the accounting standards in the great improvement of *Thai Accounting Standards* during 1999-2000. Due to the financial distress in 1997, TAS 47 replaced the previous version, which had existed for eleven years. TAS 47 supersedes TAS 13, which was issued in 1989. TAS 47 became effective for financial statements beginning on or after January 1, 2000. Non-listed companies are exempted.

Secondly, in 2002, the **Stock Exchange of Thailand** (SET) issued fifteen principles for good corporate governance. SET requests listed companies to disclose the implementation of these principles in their annual reports and annual registration statements (Form 56-1) starting on December 31, 2002.

Conflict of interest is one of the fifteen good corporate governance principles. SET will assess the complete disclosed information on how the board of directors uses inside information, conflicts of interest and connected transactions. The SET will conduct

an assessment annually and report it in a *Good Governance Assessment of Listed Companies* (The Stock Exchange of Thailand, 2003a).

In addition, the SET issued an announcement in 2003, which superseded the prior announcement of 2001, prescribing definitions, criteria, and requirements concerning connected transactions (*Notification of the Board of Governors of the Stock Exchange of Thailand: Re: Disclosure of Information and Other Acts of Listed Companies Concerning the Connected Transactions, 2003*, or Bor. Jor./ Phor. 22-01). This announcement specifies the disclosure requirement and the procedure for listed companies to deal with connected transactions.

Finally, the common cause of financial reporting restatements found in the *SEC News* from the **Securities and Exchange Commission** (SEC) is the related party transactions issue. Inaccurate and incomplete disclosure and presentation of related party transactions were the most frequent claims found during 1999 to 2006 in *SEC News*.

SEC News usually reports information related to listed companies through the website (www.sec.or.th). This includes the alteration and announcement of rules and regulations; the punishment of management, auditors and market officers; and the SEC requirement of listed companies' financial reporting restatements.

From *SEC News* during 1999 to 2006, claims related to financial reporting included Generally Accepted Accounting Principles (GAAP) violations, management expropriations, insider trading, and share price manipulation. Included in the *SEC News*

are 33 cases (26 firms) related to GAAP violation, and 15 cases (15 firms) of inaccuracy and incompleteness of disclosure and presentation of related party transactions.[1]

The characteristic of East Asian corporations also reinforces the importance of related party transactions. East Asian firms are extensively family-controlled through the pyramid structures, the cross-holdings structures and the tight connection between the controlling families and the management (Claessens et al., 2000). Controlling shareholders have almost full control over managers and frequently possess controlling power in excess of their cash flow rights. The smaller portion of the firm's cash flow rights relative to voting rights fails to align controller interests with those of outside shareholders. Controlling shareholders thus possess both incentives and the ability to report financial information for their own interests.

In Thailand, a characteristic of Thai firms is the informal alliances among a small number of families. Such families jointly possess a large share of a corporation, with one family in the alliance taking the role of principal controlling shareholder. Almost half of Thai corporations are controlled by the ten largest business families (Claessens et al., 2000). Related party transactions also occurred more in firms controlled by corporate groups than in firms that are state-enterprises and private businesses (Jian and Wong, 2003).

From the standard setters' and regulators' efforts and enforcements to control for the presentation and disclosure of related party transactions; the evidence that related

[1] Where 7 cases are allowance setting, 7 cases are revenue recognition, 8 cases are assets valuation, and 1 case is expense recognition (5 cases are accused for 2 issues). Details are available in Appendix A.

party transactions are the most frequent cause of financial reporting restatements; and the characteristics of extensive family-controlled business groups, this paper hypothesizes that managers may exercise discretion over related party transactions to manipulate the financial reports.

H1: Discretionary accruals are positively associated with related party transactions.

This study investigates the association between related party transactions and discretionary accruals to examine whether managers of Thai listed companies exercise discretion over related party transactions. This study further investigates which activity, which direction and which type of related party transactions are associated with the discretionary accruals in order to examine how related party transactions are applied in earnings management.

3.2 Research Design

3.2.1 Sample

The initial observations consist of all listed companies in the **Stock Exchange of Thailand** (SET) from SET *Fact Books* for 2003 to 2005. The financial statements information of sample firms is obtained from the SEC's website (www.sec.or.th) and the SET's website (www.setsmart.com). The related party transactions information is collected from notes to financial statements under the note titled "*Related Party Transactions*" or "*Transactions with Related Parties*".

Sample for Discretionary Accruals Estimation

Firstly, firms in the financial industry, firms under rehabilitation and real estate funds are excluded from the sample. This is because their financial reporting requirements and their characteristics of business operation are different from other firms.

Secondly, following Teoh, Welch, and Wong (1998a), the sample excludes IPO and SEO firms. This is to avoid the bias in discretionary accruals estimation as prior evidence finds income-increasing accruals in the offering year of Thai IPO and SEO firms (Kanogporn Narktabtee, 2000; Waeowan Prangthawat, 2002).

Thirdly, firms that do not have a fiscal year ended December 31 are eliminated from the sample as the cross-sectional approach uses data from firms matched by year and sector.

Finally, the sample excludes firms in any sector that have fewer than ten observations in any given year (Teoh, Wong, and Rao, 1998; Ahmed, Billings, Morton, 2004; Kothari, Leone, and Isley, 2005; Ayers, Jiang, and Yeung, 2006). This design is to exclude observations for which the regression-model-based discretionary accrual estimates are possibly imprecise (Kothari et al., 2005).

The final sample, shown in Table 3.1, comprises 511 observations from year 2003 to 2005. Table 3.1, Panel A presents the sample selection for discretionary accruals estimation and Panel B details the distribution of the sample for discretionary accruals estimation by sector (details of sample selection for discretionary accruals estimation by sector are available in Appendix B).

Table 3.1

Sample for Discretionary Accruals Estimation

Panel A: Sample Selection for Discretionary Accruals Estimation

Selection Criteria	Observations			
	2005	**2004**	**2003**	**Total**
Listed companies from SET *Fact Books*	476	441	407	1,324
Less:				
Companies in financial industry	68	65	64	197
Companies under rehabilitation	41	40	42	123
Real estate funds	8	2	2	12
IPO firms	31	31	19	81
SEO firms	56	43	41	140
Non-December year-ended companies	17	14	14	45
Missing financial statement data	2*	2**	0	4
Firms in sectors less than ten observations per sector	51	68	92	211
Final Sample	**202**	**176**	**133**	**511**

(Continued on Page 51)

* The two missing observations in 2005 are MCOT and POWER.

"MCOT" changed accounting period from year ending October to year ending December. Consequently, the income statement for year 2005 provides the financial information for January to December of 2005 compared to the financial information of October to December of 2004.

"POWER" is required by SEC to re-submit the financial statements of 2005 and 2004 (*SEC News* dated November 8, 2006). In 2004, "POWER" or "PP" was a company under rehabilitation. In 2003, "PP" was delisted from the SET on December 26, 2003.

** The two missing observations in 2004 are ASTL and MFG.

"ASTL" was delisted on February 1, 2005. Therefore, financial statements of year 2004 are not available.

"MFG" was delisted on January 5, 2005. Therefore, financial statements of year 2004 are not available.

Table 3.1 (Continued from Page 50)

Panel B: Distribution of Sample for Discretionary Accruals Estimation by Sector

Sector	2005		2004		2003		Total %
	Sample	%	Sample	%	Sample	%	
Agribusiness	17	8.42	18	10.23	14	10.53	9.59
Automotive	10	4.95	0	0.00	0	0.00	1.96
Commerce	0	0.00	11	6.25	14	10.53	4.89
Communication	10	4.95	12	6.82	0	0.00	4.31
Construction Materials	22	10.89	18	10.23	15	11.28	10.76
Electrical Products and Computer	10	4.95	0	0.00	0	0.00	1.96
Energy & Utilities	10	4.95	0	0.00	0	0.00	1.96
Entertainment and Recreation	13	6.44	10	5.68	10	7.52	6.46
Fashion	19	9.41	17	9.66	18	13.53	10.57
Food and Beverage	18	8.91	20	11.36	19	14.29	11.15
Health Care Services	12	5.94	11	6.25	11	8.27	6.65
Hotels and Travel Services	10	4.95	11	6.25	0	0.00	4.11
Packaging	11	5.45	13	7.39	11	8.27	6.85
Petrochemicals & Chemicals	10	4.95	12	6.82	0	0.00	4.31
Property Development	30	14.85	23	13.07	21	15.79	14.48
Total	**202**	**100.00**	**176**	**100.00**	**133**	**100.00**	**100.00**

This Panel B details the distribution of the final sample from Panel A.

Sample for Related Party Transactions Examination

From the 511 observations in Table 3.1, the samples without related party transactions are dropped from the analysis. After this, the usable sample is 440 observations from year 2003 to 2005 as shown in Table 3.2.

Table 3.2

Distribution of Sample for Related Party Transactions Examination by Sector

Sector	2005		2004		2003		Total %
	Sample	%	Sample	%	Sample	%	
Agribusiness	12	6.94	14	9.15	10	8.77	8.18
Automotive	7	4.05	0	0.00	0	0.00	1.59
Commerce	0	0.00	11	7.19	13	11.40	5.45
Communication	8	4.62	11	7.19	0	0.00	4.32
Construction Materials	20	11.56	17	11.11	13	11.40	11.36
Electrical Products and Computer	9	5.20	0	0.00	0	0.00	2.05
Energy & Utilities	10	5.78	0	0.00	0	0.00	2.27
Entertainment and Recreation	12	6.94	8	5.23	9	7.89	6.59
Fashion	18	10.4	17	11.11	18	15.79	12.05
Food and Beverage	16	9.25	17	11.11	18	15.79	11.59
Health Care Services	9	5.2	7	4.58	6	5.26	5.00
Hotels and Travel Services	8	4.62	9	5.88	0	0.00	3.86
Packaging	8	4.62	11	7.19	8	7.02	6.14
Petrochemicals & Chemicals	9	5.20	10	6.54	0	0.00	4.32
Property Development	27	15.61	21	13.73	19	16.67	15.23
Total	**173**	**100.00**	**153**	**100.00**	**114**	**100.00**	**100.00**

3.2.2 Measurement of Discretionary Accruals

An estimation of discretionary accruals is based on *Cross-Sectional Modified Jones Model*, but adjusted for the portion of related party transactions. The related party transactions portion is removed from the nondiscretionary accruals component.

$$\frac{TAC_{it}}{TA_{it-1}} = \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \frac{\Delta NRCS_{it}}{TA_{it-1}} + \alpha_3 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it}$$

The parameters, α_1, α_2 and α_3, are estimated using *Ordinary Least Squares* (OLS). This model is estimated separately for each combination of data from firms matched by year and sector. That is the model is re-estimated each year for each sector. The estimated values, a_1, a_2 and a_3, are used to estimate nondiscretionary accruals (NDAC).

$$NDAC_{it} = a_1 \frac{1}{TA_{it-1}} + a_2 \frac{\Delta NRCS_{it}}{TA_{it-1}} + a_3 \frac{PPE_{it}}{TA_{it-1}}$$

After that, discretionary accruals (DAC) are computed as the difference between total accruals and nondiscretionary accruals.

$$DAC_{it} = \frac{TAC_{it}}{TA_{it-1}} - NDAC_{it}$$

Where:

TAC_{it} = Total accruals of firm i in year t

= Net income before extraordinary items of firm i in year t – Cash flow from operations before extraordinary items of firm i in year t

$\Delta NRCS_{it}$ = Cash collected from sales to non-related parties of firm i in year t less cash collected from sales to non-related parties of firm i in year t-1

PPE_{it} = Gross property, plant, and equipment of firm i in year t

$NDAC_{it}$ = Estimated nondiscretionary accruals of firm i in year t

DAC_{it} = Estimated discretionary accruals of firm i in year t

TA_{it-1} = Total assets of firm i in year t-1

The rational behind this model is described below.

Firstly, the related party transactions portion is extracted from the nondiscretionary accruals component.

$$NDAC_{it} = \alpha_1 \frac{1}{TA_{it-1}} + \alpha_2 \frac{\Delta NRCS_{it}}{TA_{it-1}} + \alpha_3 \frac{PPE_{it}}{TA_{it-1}}$$

$$\Delta NRCS_{it} = \Delta NRREV_{it} - \Delta NRREC_{it}$$

$$= (\Delta REV_{it} - \Delta RPREV_{it}) - (\Delta REC_{it} - \Delta RPREC_{it})$$

$$= \overbrace{(\Delta REV_{it} - \Delta REC_{it})}^{\text{Total cash collected from sales}} - \overbrace{(\Delta RPREV_{it} - \Delta RPREC_{it})}^{\text{Cash collected from sales to related parties}}$$

$$\underbrace{\qquad\qquad\qquad\qquad\qquad\qquad}_{\text{Cash collected from sales to non-related parties}}$$

Where:

$\Delta NRREV_{it}$	=	Revenues from non-related parties of firm i in year t less revenues from non-related parties of firm i in year t-1
$\Delta NRREC_{it}$	=	Accounts receivable from non-related parties of firm i in year t less accounts receivable from non-related parties of firm i in year t-1
ΔREV_{it}	=	Revenues of firm i in year t less revenues of firm i in year t-1
$\Delta RPREV_{it}$	=	Revenues from related parties of firm i in year t less revenues from related parties of firm i in year t-1
ΔREC_{it}	=	Accounts receivable of firm i in year t less accounts receivable of firm i in year t-1
$\Delta RPREC_{it}$	=	Accounts receivable from related parties of firm i in year t less accounts receivable from related parties of firm i in year t-1

The adjustment of related party transactions in the *Modified Jones Model* is based on the conjecture that Thai managers may exercise discretionary control over related party transactions. This conjecture is based on several findings shown in a) to c) below.

a) The characteristic of family business groups found in Thai listed companies (Claessens et al., 2000). This encourages the importance of related party transactions. Firms controlled by corporate groups are also found to have more related party transactions than firms that are state-enterprises and private businesses (Jian and Wong, 2003).

b) Related party transactions are the common cause[2] of the **Securities and Exchange Commission** (SEC) to request financial reporting restatements.

c) Thai standard setters and regulators use much effort to control for the presentation and disclosure of related party transactions. They issue and revise rules and guidelines for related party transactions as discussed earlier.

Consequently, using the same rational as for the adjustment in the *Modified Jones Model*, this model assumes that the changes in transactions with related parties may result from management's discretion. Therefore, the portion of related party transactions is excluded from the nondiscretionary portion.

Secondly, this model applies a cross-sectional approach estimation using data from firms matched by year and industry (DeFond and Jiambalvo, 1994; Subramanyam, 1996; Bartov, Gul, and Tsui, 2001; Frankel, Johnson, and Nelson, 2002; Klein, 2002; Kothari et al., 2005). The cross-sectional approach is chosen instead of the time-series approach for a number of reasons.

[2] 15 cases from 33 cases of GAAP violation. Where 7 cases are allowance setting, 7 cases are revenue recognition, 8 cases are assets valuation, and 1 case is expense recognition (5 cases are accused for 2 issues). Details are available in Appendix A.

a) It generates more samples. The time-series approach requires a minimum of 6 years[3] of data prior to the investigation period to have enough degrees of freedom to perform statistical tests (DeFond and Jiambalvo, 1994).

b) It increases the accuracy of the estimation due to the considerably higher number of observations per model. In addition, the time-series approach is estimated over an estimation period up to ten years, so the estimation may misspecify due to non-stationarity (Subramanyam, 1996).[4]

Finally, total accruals are defined as the difference between earnings before extraordinary items and cash flow from operations before extraordinary items. The measurement of total accruals in the literature can be obtained from the change in successive balance sheet accounts and from the statement of cash flows directly.

The balance sheet approach depends on the presumed articulation between the changes in balance sheet working capital accounts and the accrual component of revenues and expenses on the income statement. However, this presumed articulation breaks down when non-operating events occur. This is because such events impact the current asset and liability accounts with no earnings impacts.

---

[3] Minimum years prior to investigation period in Jones (1991), DeFond and Jiambalvo (1994) and Dechow et al. (1995) are 14, 6 and 10 years, respectively.

[4] Subramanyam (1996) reports that parameter estimates are better specified for the cross-sectional model than the time-series model. The coefficients have lower average standard error, fewer outliers and greater proportion of the predicted signs. Whereas DeFond and Jiambalvo (1994) mentions that the magnitudes of the coefficients from the cross-sectional model and the time-series model are quite similar.

Measuring accruals from the cash flows statement have less error than from the balance sheet account. There is evidence of error and bias introduced by the balance sheet approach in accruals estimated to test for earnings management, particularly when non-operating events such as mergers and acquisitions or discontinuing operations occur (Hribar and Collins, 2002). [5] Therefore, measuring accruals directly from the statement of cash flows is a more appropriate measure.[6]

3.2.3 Model Specification

Multiple regression analysis is applied to examine the association of the log of discretionary accruals and related party transactions.

In order to examine whether managers apply related party transactions in earnings management, the net value of all related party transactions collected from the notes to financial statements are explored in model (1).

To provide further evidence on how managers apply related party transactions in earnings management, the study on which activity, which direction, and which type of related party transactions that are associated with the discretionary accruals are further examined.

---

[5] Mergers and acquisitions induce an upward bias in balance sheet accruals estimates, while discontinued operations induce a downward bias. Large mergers and acquisitions also induce an incremental bias (Hribar and Collins, 2002).

[6] Other papers using this approach to obtain total accruals are Defond and Jiambalvo (1994), Subramanyam (1996), Kasznik (1999), Bradshaw, Richardson, and Sloan (2001), Frankel et al. (2002), Haw, Qi and Wu (2001), Klein (2002), Yoon and Miller (2002), Ahmed et al. (2004), Marquardt and Wiedman (2004), Ayers et al. (2006).

The net value of related party transactions is composed of various transactions from several business activities. Therefore, related party transactions are first classified by activities, these are operating, investing and financing, and are studied in model (2).

The net value of related party transactions from each activity can increase (decrease) following the increase (decrease) in the inflow and the decrease (increase) in the outflow. Hence, the inflows and outflows from each activity are investigated in model (3).

Finally, all types of related party transactions are examined in model (4).

The analysis of each model is separated into three groups of samples, which are the full sample, the positive discretionary accruals sample and the negative discretionary accruals sample.

Model 1: Net Value of Related Party Transactions

$$\text{Log DAC}_{it} = \alpha_{0} + \boldsymbol{\alpha_1\, \text{NetRPT}_{it}} + \alpha_2\, \text{TA}_{it} + \alpha_3\, \text{Leverage}_{it} + \alpha_4\, \text{ABS\_TAC}_{it} + \alpha_5\, \text{Growth}_{it} + \alpha_6\, Y_{1it} + \alpha_7\, Y_{2it} + \varepsilon_{it} \quad (1)$$

Model 2: Activities of Related Party Transactions

$$\text{Log DAC}_{it} = \alpha_{0} + \boldsymbol{\alpha_1\, \text{NetO}_{it} + \alpha_2\, \text{NetI}_{it} + \alpha_3\, \text{NetF}_{it}} + \alpha_4\, \text{TA}_{it} + \alpha_5\, \text{Leverage}_{it} + \alpha_6\, \text{ABS\_TAC}_{it} + \alpha_7\, \text{Growth}_{it} + \alpha_8\, Y_{1it} + \alpha_9\, Y_{2it} + \varepsilon_{it} \quad (2)$$

Model 3: Inflow and Outflow of Related Party Transactions Classified by Activities

$$\text{Log DAC}_{it} = \alpha_0 + \alpha_1 \mathbf{O\_IN_{it}} + \alpha_2 \mathbf{O\_OUT_{it}} + \alpha_3 \mathbf{I\_IN_{it}} + \alpha_4 \mathbf{I\_OUT_{it}} + \alpha_5 \mathbf{F\_IN_{it}} + \alpha_6 \mathbf{F\_OUT_{it}} + \alpha_7 \text{TA}_{it} + \alpha_8 \text{Leverage}_{it} + \alpha_9 \text{ABS\_TAC}_{it} + \alpha_{10} \text{Growth}_{it} + \alpha_{11} Y_{1it} + \alpha_{12} Y_{2it} + \varepsilon_{it} \quad (3)$$

Model 4: Types of Related Party Transactions

$$\text{Log DAC}_{it} = \alpha_0 + \alpha_1 \mathbf{SSR_{it}} + \alpha_2 \mathbf{MRI_{it}} + \alpha_3 \mathbf{OI_{it}} + \alpha_4 \mathbf{PUR_{it}} + \alpha_5 \mathbf{MRE_{it}} + \alpha_6 \mathbf{OE_{it}} + \alpha_7 \mathbf{AS_{it}} + \alpha_8 \mathbf{DR_{it}} + \alpha_9 \mathbf{IR_{it}} + \alpha_{10} \mathbf{AA_{it}} + \alpha_{11} \mathbf{STL_{it}} + \alpha_{12} \mathbf{LTL_{it}} + \alpha_{13} \mathbf{STB_{it}} + \alpha_{14} \mathbf{LTB_{it}} + \alpha_{15} \mathbf{DP_{it}} + \alpha_{16} \text{TA}_{it} + \alpha_{17} \text{Leverage}_{it} + \alpha_{18} \text{ABS\_TAC}_{it} + \alpha_{19} \text{Growth}_{it} + \alpha_{20} Y_{1it} + \alpha_{21} Y_{2it} + \varepsilon_{it} \quad (4)$$

Where:

Log DAC_{it} = Log of discretionary accruals of firm i in year t.

As discussed earlier, discretionary accruals are obtained from the *Cross-Sectional Modified Jones Model* adjusted for the portion of related party transactions. For the sample with negative discretionary accruals, the values of discretionary accruals without sign are transformed into log function.

Even though, based on the *Central Limit Theorem*, we can assume the normal distribution of residuals when sample size is large,[7] the log form of discretionary accruals is used to reduce the violation of the normality assumption of the regression model (if any).

TA_{it}	=	Book value of total assets of firm i in year t, in billions of baht
$Leverage_{it}$	=	Total debt of firm i in year t / Total assets of firm i in year t
ABS_TAC_{it}	=	Absolute value of total accruals of firm i in year t deflated by total assets of firm i in year t-1
$Growth_{it}$	=	Percentage change in sales of firm i in year t
Y_{1it}	=	One if firm i is in year 2005, and zero otherwise
Y_{2it}	=	One if firm i is in year 2004, and zero otherwise
$NetRPT_{it}$	=	Net value of related party transactions of firm i in year t scaled by total assets of firm i in year t-1
$NetO_{it}$	=	Net value of related party transactions from operating activities of firm i in year t scaled by total assets of firm i in year t-1
$NetI_{it}$	=	Net value of related party transactions from investing activities of firm i in year t scaled by total assets of firm i in year t-1

[7] A general rule accepts a sample size of 30 or more as large (Dielman, 2005). The lowest sample size of this study is 174, in model (4) with negative discretionary accruals sample.

$NetF_{it}$ = Net value of related party transactions from financing activities of firm i in year t scaled by total assets of firm i in year t-1

O_IN_{it} = Total inflow of related party transactions from operating activities of firm i in year t scaled by total assets of firm i in year t-1

O_OUT_{it} = Total outflow of related party transactions from operating activities of firm i in year t scaled by total assets of firm i in year t-1

I_IN_{it} = Total inflow of related party transactions from investing activities of firm i in year t scaled by total assets of firm i in year t-1

I_OUT_{it} = Total outflow of related party transactions from investing activities of firm i in year t scaled by total assets of firm i in year t-1

F_IN_{it} = Total inflow of related party transactions from financing activities of firm i in year t scaled by total assets of firm i in year t-1

F_OUT_{it} = Total outflow of related party transactions from financing activities of firm i in year t scaled by total assets of firm i in year t-1

SSR_{it} = Sales and services revenue from related parties of firm i in year t scaled by total assets of firm i in year t-1

MRI_{it} = Management and rental income from related parties of firm i in year t scaled by total assets of firm i in year t-1

OI_{it} = Other income from related parties of firm i in year t scaled by total assets of firm i in year t-1

PUR_{it} = Purchase of materials and services from related parties of firm i in year t scaled by total assets of firm i in year t-1

MRE_{it} = Management and rental fees paid to related parties of firm i in year t scaled by total assets of firm i in year t-1

OE_{it} = Other expenses paid to related parties of firm i in year t scaled by total assets of firm i in year t-1

AS_{it} = Assets sales to related parties of firm i in year t scaled by total assets of firm i in year t-1

DR_{it} = Dividend revenue from related parties of firm i in year t scaled by total assets of firm i in year t-1

IR_{it} = Interest revenue from related parties of firm i in year t scaled by total assets of firm i in year t-1

AA_{it} = Assets acquisition from related parties of firm i in year t scaled by total assets of firm i in year t-1

STL_{it} = Short-term lending to related parties of firm i in year t scaled by total assets of firm i in year t-1

LTL_{it} = Long-term lending to related parties of firm i in year t scaled by total assets of firm i in year t-1

STB_{it} = Short-term borrowing from related parties of firm i in year t scaled by total assets of firm i in year t-1

LTB_{it} = Long-term borrowing from related parties of firm i in year t scaled by total assets of firm i in year t-1

DP_{it} = Dividend paid to related parties of firm i in year t scaled by total assets of firm i in year t-1

All variables, except for Log DAC, TA, Leverage, and Growth, are deflated by lagged total assets to mitigate the heteroskedasticity in residuals.

Independent Variables

Related party transactions are the independent variable in the model in order to examine the opportunistic behavior through related party transactions. Related party transactions are collected from the notes to financial statements under the section of transactions with related parties and are measured in baht scaled by lagged total assets.

The net value of all related party transactions collected from the notes is explored in model (1). This amount is then classified by activities, these are operating, investing and financing, in model (2). After that, model (3) separates the inflow and outflow from each activity. Finally, all types of related party transactions are investigated in model (4).

Even though discretionary accruals are derived from transactions with related parties and transactions with non-related parties, only the formers are of concern in this study. Discretionary accruals from transactions with non-related parties are already included in the models as control variables. Others are included in the residuals.

Based on the *Central Limit Theorem*, the distribution of the residuals in a large sample size is normal. A general rule accepts a sample size of 30 or more as large (Dielman, 2005). The lowest sample size of this study is 174, in model (4) with negative discretionary accruals sample, which far larger than 30. Therefore, the assumption of normal distribution of residuals is justified. That is the distribution of the residuals in this study is normal. This suggests the unbiased results of this study.

Control Variables

The control variables from prior studies are summarized in Table 3.3.

The *Pearson Correlation* of the dependent variable with each control variable in prior studies is examined in order to select the control variables for the model.

Table 3.4 presents *Pearson Correlation* analysis of the log of discretionary accruals with each alternative control variable. Among several alternative variables for performance control, an absolute value of total accruals should be selected since its correlation is the highest and is statistically significant. Moreover, results from Table 3.4 suggest that the book value of total assets in year t, the total debt divided by total assets, and the percentage change in sales should be included in the model. Therefore, this study includes these four control variables in the model.

Table 3.3

Summary of Control Variables for Discretionary Accruals Study

Effect	Measurement	Sign	Reference
Size	Log of total assets ($LogTA_t$)	-	Barwhede et al. (2003)
	Log of lagged total assets ($LogTA_{t-1}$)		Klein (2002)
	Book value of lagged total assets (TA_{t-1})		Haw et al. (2004)
Leverage	Total debt/ Total assets	+	Bartov et al. (2001), Frankel et al. (2002), Klein (2002), Barwhede et al. (2003), Haw et al. (2004)
Performance	Cash flow from operations / Lagged total assets (CFO_t)	+	Frankel et al. (2002), Barwhede et al. (2003), Haw et al. (2004)
	Absolute value of cash flow from operations / Lagged total assets (ABS_CFO_t)		Haw et al. (2004)
	Total Accruals / Lagged total assets (TAC_t)		Frankel et al. (2002), Haw et al. (2004)
	Absolute value of total accruals / Lagged total assets (ABS_TAC_t)		Frankel et al. (2002)
	ROA_t (Earnings before extraordinary items / Total assets)		Haw et al. (2004)
	Absolute value of change in ROA ($ABS\_CH\_ROA_t$)		Bartov et al. (2001), Klien (2002), Haw et al. (2004)
	Lagged earnings / Lagged total assets (E_{t-1})		Haw et al. (2004)
Growth	Percentage change in sales	+	Haw et al. (2004)

Table 3.4

***Pearson Correlation* Analysis of Alternative Control Variables with Log of Discretionary Accruals**

Effect	Measurement	Total Sample N = 440	Positive DAC N = 217	Negative DAC N = 223
Size	$LogTA_t$	0.001	0.117	-0.094
	TA_t	0.016	0.139*	-0.039
	$LogTA_{t-1}$	0.004	0.094	-0.069
	TA_{t-1}	0.011	0.122	-0.032
Leverage	**Total debt/ Total assets**	0.075	0.146*	0.019
Performance	CFO_t	-0.037	0.021	-0.075
	ABS_CFO_t	0.064	0.134*	0.015
	TAC_t	0.093	0.458**	-0.272**
	ABS_TAC_t	0.392**	0.419**	0.370**
	ROA_t	-0.113**	0.091	-0.195**
	$ABS\_CH\_ROA_t$	0.147**	0.069	0.190**
	E_{t-1}	0.037	0.094	-0.007
Growth	**% change in sales**	0.096*	0.188**	-0.008

* *Pearson correlation* coefficients are significant at the level of 0.05
** *Pearson correlation* coefficients are significant at the level of 0.01

Earnings management literature suggests controlling for the above effects on the level of discretionary accruals as follow.

Firstly, company size is measured by book value of total assets in billions of baht. From positive accounting theory, the political cost (size) hypothesis mentions that larger firms, which imply more political attention, are more likely to manage earnings downward (Watts and Zimmerman, 1986; 1990).

Secondly, leverage, defined as total debt divided by total assets, is included in the model to control for the constraint from the debt covenant. From positive accounting theory, the debt/ equity hypothesis suggests that a higher debt/ equity ratio is an incentive for firm's managers to manage earnings upward (Watts and Zimmerman, 1986; 1990). In addition, there is evidence of huge positive discretionary accruals in firms that violate debt covenants (DeFond and Jiambalvo, 1994).

The financial performance is another concern frequently found in earnings management studies. Since both the *Jones* and the *Modified Jones Models* have misspecification bias against financial performance, these models lead to a misspecified test of earnings management for firms with extreme financial performances (Dechow et al., 1995). Therefore, this study controls for financial performance bias by including absolute value of total accruals scaled by lagged total assets in the model.

Finally, the literature reports that growth firms have higher discretionary accruals even after control for financial performance (McNichols, 2000). The growth opportunity is measured by percentage change in sales (Bodnar and Weintrop, 1997; Haw, Hu, Hwang, and Wu, 2004).

All variables examined in this study are summarized in Table 3.5.

Table 3.5

Summary of Variables Definition

Variable	Definition
Dependent Variable	
Log DAC	Log of discretionary accruals estimated from *Cross-Sectional Modified Jones Model* adjusted for the effect of related party transactions
Independent Variables (Related party transactions variables)	
NetRPT	Net value of related party transactions (NetO + NetI + NetF)
NetO	Net value of related party transactions from operating activities (O_IN - O_OUT)
NetI	Net value of related party transactions from investing activities (I_IN - I_OUT)
NetF	Net value of related party transactions from financing activities (F_IN - F_OUT)
O_IN	Total inflow of related party transactions from operating activities (SSR + MRI + OI)
O_OUT	Total outflow of related party transactions from operating activities (PUR + MRE + OE)
I_IN	Total inflow of related party transactions from investing activities (AS + DR + IR)
I_OUT	Total outflow of related party transactions from investing activities (AA + STL + LTL)
F_IN	Total inflow of related party transactions from financing activities (STB + LTB)
F_OUT	Total outflow of related party transactions from financing activities (DP)

(Continued on Page 70)

Table 3.5 (Continued from Page 69)

Summary of Variables Definition

Variable	Definition
Independent Variables (Related party transactions variables)	
SSR	Sales and services revenue from related parties
MRI	Management and rental income from related parties
OI	Other income from related parties
PUR	Purchase of materials and services from related parties
MRE	Management and rental fees paid to related parties
OE	Other expenses paid to related parties
AS	Assets sales to related parties
DR	Dividend revenue from related parties
IR	Interest revenue from related parties
AA	Assets acquisition from related parties
STL	Short-term lending to related parties
LTL	Long-term lending to related parties
STB	Short-term borrowing from related parties
LTB	Long-term borrowing from related parties
DP	Dividend paid to related parties
Control Variables	
TA	Book value of total assets in billion baht
Leverage	Total debt / Total assets
ABS_TAC	Absolute value of total accruals
Growth	Percentage change in sales