

## Chapter 3

### Data and Methodology

This chapter begins with the discussion of our sample. Then, the variables, i.e., bank connections and control variables, and corporate restructuring variables, as well as the data sources are illustrated. Finally, the chapter reviews the approaches used in our study, namely univariate estimations and probit regression. These approaches are used to investigate the effect of bank connections on the likelihood that firms restructure in response to the East Asian crisis.

#### 3.1 The sample

Sample firms are non-financial firms listed on the Stock Exchange of Thailand (SET). The sample period covers a period of 1996 - 2000. This sample period will reflect restructuring activities in Thailand before, during and after the 1997 financial crisis. The sample period is divided into three sub-sample periods: the pre-crisis (1996), during-crisis (1997-1998), and post-crisis (1999-2000) periods.<sup>10</sup> We exclude firms in the banking and financial sector because of their non-traditional financial statements. We define 1997 as the base year since this is when firms experience the economic shock and might undertake various restructuring actions in response. As firms may not have responded to the shock immediately, we think that it is more appropriate to investigate restructuring actions over a longer period.

#### 3.2 Data

The data here are categorized to bank connections data, firm financial characteristics data, and restructurings data.

##### *3.2.1 Data on bank connections*

We classify firms into two groups: bank-connected and non-connected firms. For connected firms, we also classify the firms into two types: ownership connected firms and director-

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<sup>10</sup> The 1995 data are not included in the pre-crisis period because there were only a small number of restructuring actions taken in that year. In addition, some of the independent variables that are measured as of one year prior to the restructuring year are not available for 1995.

connected firms. The information used to define bank connections is only publicly available information from the SET. For each sample year, we have cross-section data. For each cross-section data, we classify firms into “bank-connected” and “non-connected” firms according to the data on ownership and boards of directors in that year.<sup>11</sup> A firm is a bank-connected firm if 1) a major shareholder of a bank or a member of his related families holds at least 10% shareholding of the firm (CONN1)<sup>12</sup>, 2) if a major shareholder of the firm or a member of his related families is a director of a bank (CONN2), 3) a major shareholder of a bank or a member of his related families is a director of a firm (CONN3), or 4) a bank director is a director of a firm (CONN4).

In order to analyze the effect of the strength of connections, we define ownership connections as the strong connections and director connections as weaker connections. The dummy of ownership connections equals to 1 if CONN1=1 only. The dummy of director connections equals to 1 if CONN2, CONN3 or CONN 4 = 1 and CONN1 unequal to 1.

In order to define connection variables, we obtain lists of family business groups and lists of ownership structure of Thai firms, commercial banks and finance companies. In addition, lists of board of directors of Thai firms, commercial banks and finance companies are collected from the SETSMART database of the Stock Exchange of Thailand and the annual company reports.

### *3.2.3 Data on firm characteristics*

Firm characteristics in our study include the affiliation with large Thai business groups and financial characteristics. Data on business group membership are collected from “Thai Business Groups 1996/1997: A Unique Guide to Who Owns What”, published by Tara Siam Ltd. in 1997. This book reports the list of the top 150 business groups in Thailand. Data on financial characteristics include industrial classification, book value of total assets, debt and equity, sales, and market capitalization. Key financial ratios are also calculated. These ratios

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<sup>11</sup> We exclude the crisis period (1997 and 1998) because, during this time interval, various government actions and the ongoing process of bank closures and capital injections in Thai financial institutions, make it difficult to define the existence of bank connections. Therefore, we assume that the existence of bank connections in 1997 and 1998 remains the same as in 1996.

<sup>12</sup> We use a cut-off point of ownership shareholding at 10% to define a major shareholder as prior literature (La Porta et al., 1999; Claessens et al., 2000) suggests that such a stake lends sufficient power.

represent operating performance, capital structure, and liquidity of the sample firms. The data are obtained mainly from the SETSMART database. This database contains financial information on Thai listed companies, including financial statements, notes to financial statements, auditors' reports, released on a quarterly basis, and stock prices. For companies where such data are not available from the SETSMART database, annual disclosure forms (FM 56-1) submitted to the SET are used.

### *3.2.4 Data on corporate restructuring actions*

The announcements of restructuring actions are posted on the SET website for six months and are updated daily. It is then kept in the company daily news database. Data collection for this section requires one to go through all companies' daily news databases and extract relevant information relating to restructuring activities. Data on some restructuring actions are also gathered from additional sources including press reports in the Bangkok Post and company annual reports and financial statements.

#### *Types of corporate restructuring actions*

Following the literature (for example, John et al. 1992; Ofek, 1993; Kang and Shivdasani, 1997; Lai and Sudarsanam, 1997; Denis and Kruse, 2000; Kang et al. 2001; Baek et al. 2002), restructuring actions can be categorized into the five broad types shown below.

1. *Asset downsizing* occurs when a firm undertakes any of the following activities: selling assets (e.g., financial securities, land, properties, and stakes in other businesses or joint ventures), closing down a plant, reducing production capacities, discontinuing or suspending production operations or shutting down a division/office/branch/subsidiary.
2. *Management turnover* occurs when a firm replaces at least one of its top management positions, including Chairman of the board, President, Vice President, Chief Executive Officer, Managing Director, General Manager, Deputy Managing Director, and Deputy General Manager.
3. *Dividend cut* occurs when a firm reduces its dividend payout from the previous year or omits its dividend payout after paying a dividend in the previous year.
4. *Debt restructuring* occurs when a firm undertakes any of the following activities: a negotiation with creditors that leads to lower interest and principal payments or an increase in the maturity of the firm's debt, exchanging equity securities (common

stocks or securities convertible to common stocks) for debt or offering creditors the firm's equity securities, or appointing a financial advisor to assist in the debt restructuring process.

5. *Capital raising* occurs when a firm issues new loans, debentures, common stock or hybrid securities including preferred stock, warrants, and convertible debentures.

Although *employee layoffs* are a common way to restructure, this action is not included in the present study because such data are not available for Thai firms.

### **3.3 Methodology**

#### *3.3.1 Univariate analyses*

To examine the relation between bank connections and the likelihood of firm restructurings, one way is to conduct a univariate analysis. This approach involves a comparison of the restructuring incidence between two subsamples. One subsample contains firms with bank connections while the other includes firms without that characteristic. According to the hypothesis we develop in Chapter 2, firms that possess bank connection characteristics are expected to show a higher restructuring frequency. We also further investigate the impact of the connection strength on the restructuring likelihood. Using univariate estimations, sample firms are divided in two different ways to investigate the following specifications.

- (i) Whether firms with bank connections are more or less likely to restructure, relative to firms without bank connections.
- (ii) Whether firms with director connections are more or less likely to restructure, relative to firms with ownership connections.

The univariate analysis is done by first calculating the means of the restructuring frequencies in the two subsamples of firms within the same specification. *T*-tests are then conducted to determine whether the means are significantly different from each other. If the means are significantly different from each other, then it can be inferred that the bank connections/the strength of connections are associated with restructuring incidences. The statistical inference of each specification is drawn from *p*-values of these *t*-tests.

An alternative approach not only investigates the effect of bank connections and the connection strength on the likelihood of corporate restructuring but also incorporates other

significant determinants of the restructuring likelihood. This approach is a probit regression described in the following section.

### 3.3.2 Probit analyses

The univariate specifications above have a main limitation. That is, the univariate analysis fails to control for other variables that also have a significant impact on the likelihood of restructuring actions. To control for the impacts of other significant variables, we will conduct probit estimations. Probit estimations are one of the conventional methodologies used in the literature. In our probit models, dependent variables in the probit models are binary variables taking a value of one if a particular restructuring action occurs and zero otherwise, while explanatory variables are a set of variables regarding business groups and other control variables. This model, as shown in specification (1), is used to study the impact of determinants on the probability of restructuring.

$$\text{Probability (Restructuring)} = \Phi(\beta x) \quad (1)$$

where  $x$  is a vector of independent variables and  $\Phi$  is the standard normal cumulative distribution function. The dependent variable (restructuring) is one if a firm engages into one of five restructuring activities, and zero if it is not. Independent variables are institutional and financial characteristics of firms in Thailand, including variables of the presence of bank connections, business group structure, leverage (proxied by the ratio of total debt to total assets), size (proxied by the log of total assets), performance (proxied by the ratio of EBIT to total assets), industry-based performance (proxied by the median ratio of EBIT to total assets of the industry in which a firm is classified), and liquidity (proxied by the ratio of current assets to current liabilities). The presence of bank connections and the affiliation to a large business group are measured as of in which restructuring is taken (Year 0), while financial explanatory variables are measured as of the year prior to the restructuring year (Year -1).