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Should Interested Parties Focus Their Attention on the Firms' Foreign Direct Investment? Evidence from Japan

Graduate School of Economics, Nagoya University
Academic Advisor: (Associate Professor) SEMBA HU Dan
Name: GU Junjian

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By

GU Junjian

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Dissertation Advisory Committee

SEMBA HU Dan

(Associate Professor) (Academic Advisor)

NEMOTO Jiro

(Professor) (Sub Academic Advisor)

TSUNOGAYA Noriyuki

(Professor) (Seminar Advisor)

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Contents

CHAPTER 1 INTRODUCTION

1.1 Motivations and Objectives

Nowadays, the globalization of local firms is an important topic for every country, as it is one of the main drivers of economic growth. As of 2015, thirty-two Japanese firms are listed on overseas stock markets[1]. In addition, approximately 1,100 listed Japanese firms have Foreign Direct Investment (FDI)[2] in 110 countries, as shown in Figure 1.1. The total number of Japanese overseas subsidiaries in 2014 reached 26,100, in which the compound annual growth rate (CAGR) of the subsidiaries was 4.7% from 2004-2014[3]. Based on this trend, it can be expected that more local Japanese firms will expand into global markets.

Figure 1.1 Listed Japanese firms' FDI at the world level in 2014

Source: Made by author with the map generating tool based on the data from the Toyo Keizai's Overseas Japanese Companies Database

[1] 17 in the U.S., 11 in European markets, and 7 in Asian markets.

[2] Foreign direct investment, is defined as "investments in which the firm acquires a substantial controlling interest in a foreign firm or sets up a subsidiary in a foreign country" (Markusen, 1995).

[3] Information about Japanese firms' FDI is obtained from the Toyo Keizai's Overseas Japanese Companies database.

To the best of our knowledge, few accounting research discuss the case of Japanese firms' FDI with empirical methods. We are motivated to do the empirical accounting research on FDI of Japanese listed firms. The objective of this dissertation is to investigate whether interested parties could get the implications through analyzing the characteristics of Japanese firms' FDI.

Since there are different types of interested parties, each group of them has its' own interesting points. We try to find answers to several important questions for each group of interested parties (i.e. investors, tax policy makers, and audit regulators). Q1: Whether FDI can lead to a high level of earnings quality? Q2: How investors use the information from financial statements of Japanese firms with FDI to gain a high stock return? Q3: What types of portfolio of FDI those probably lead to a negative effect on tax avoidance practice? Q4: How auditors charge audit fees based on clients' FDI characteristics? Those objectives are motivated by several reasons listed as follows:

First of all, several accounting studies have shown the relationships between earnings qualities and stock market reaction, tax avoidance, and audit fees, respectively (Chan et al., 2006; Callen, Khan, and Lu, 2013; Guenther, 1994; Beuselinck and Deloof, 2014; Abbott, Parker, and Peters, 2006; Bedard and Johnstone, 2004). If there exists the relationship between FDI and earnings qualities, interested parties will benefit from this cognition in many aspects. Hence, it is imperative that interested parties focus on several important indices of earnings qualities, helping themselves to evaluate the quality of companies' accounting statements which will lead to a satisfying decision. To the best of our knowledge, no research has yet to investigate the effects of the FDI on earnings qualities on the basis of the evidences from Japanese cases. We are motivated to detect the relationship between FDI and companies' earnings qualities, which will be discussed in Chapter 2.

Secondly, the Japanese stock market is the third largest in the world. As of 2014, the Japanese market accounted for 6.6% of the world's stock market capitalization[4]. Both the local and overseas investors take an interest in the Japanese stock market. However,

[4] Information about stock market capitalization is obtained from the World Development Indicators of World Bank. As of 2014, the United States and China (without Hong Kong SAR) accounted for 39.6% and 9.0% of the world's stock market capitalization, respectively.

in spite of the Japanese market's mature market environment, most investors who are curious about the Japanese stock market find it troublesome to find high quality research article discussing about how to comprehensively use public information from the Japanese financial statements. Thus, we are motivated to draw both local and overseas investors' attention and raise their awareness on the Japanese financial statements of firms with FDI for the purpose of improving their investment performance by fundamental analysis, which will be discussed in Chapter 3. Since McLean and Pontiff (2016)'s findings suggesting that investors have the ability to learn about mispricing from academic publications, which can be found by search engines such as Econlit[5]. We hope that Chapter 3 will help investors to reach their goals.

Thirdly, FDI continues to be a critical research topic in accounting, finance, and economics. Several studies have discussed the relationship between tax avoidance and FDI (Morck and Yeung, 1991; weichenrieder, 1996; Rego, 2003; Clausing, 2009; Taylor and Richardson, 2012; Inger, 2014). However, very few studies paid attention to the relationship between the portfolio of FDI and tax avoidance practice. In Chapter 4, we are motivated to explore the empirical association between a firm's portfolio of FDI and corporate tax avoidance practice from the perspectives of the host countries' legal system and degree of development.

Fourthly, abundant research has discussed the determinants of audit fees over the past three decades. Simunic (1980)'s audit pricing theory[6] was used in numerous studies to investigate their test variables. These test variables were represented as factors to affect auditor's efforts or the expected risks, which leads to lower or higher audit fees. FDI reflects the important strategies of the corporations, and several research has examined the impact of risk and uncertainty on FDI decisions (Delios and Henisz, 2003). Several previous auditing studies used foreign subsidiaries as the indicator of complexity into their audit fees models (Hay, Knechel, and Wong, 2006), but as far as we know, few of

[5] McLean and Pontiff (2016) focus on studies in peer-reviewed finance, accounting, and economics journals, and studies that can be constructed with publicly available data. Most often, these studies are identified by search engines such as Econlit by searching for articles in finance and accounting journals with words such as cross-section.

[6] Audit fees are associated with auditor's effort and the expected risk (Simunic, 1980).

these studies investigated the possible effects of the client firm's FDI characteristics on audit fees. We are motivated to examine these effects in Chapter 5.

1.2 Methods and Results

Using a sample of Japanese firms' FDI in global markets in Chapter 2, we try to find the relationship between FDI and companies' earnings qualities. In this chapter, we use the propensity score matching model to control the differences in firm characteristics between Japanese firms engaging in FDI and Japanese firms not engaging in FDI, and use regression models to test six hypotheses on correlations amongst earnings qualities, legal systems, and degrees of development. We find that FDI not only can reduce earnings management risk, but also can impair the reporting conservatism. Further analyses show that firms under greater influence of common law countries or developed countries have higher level of earnings qualities.

Chapter 3 aims to attract investors' attention on how to improve their investment performance by using fundamental analysis with the sample of Japanese firms engaging in FDI. In this chapter, we use the cross-sectional model (logistic model) to test the relationship between firms' stock price (one-year-ahead earnings increase) and massive of variables picked from financial statements, and then, we develop two types of firm valuation models to predict stock returns, which is suitable for the Japanese market so far. Furthermore, we construct three kinds of investment portfolios based on the valuation models, and we find some meaningful ones amongst those, thus lead to better trading strategies. We find that there is a potential for making abnormal profits by distinguishing between undervalued and overvalued stocks with cross-sectional model, not by forecasting one-year-ahead earnings changes with logistic model. We also find that there is a relatively higher potential for making abnormal profits by combining the results of two different models (cross-sectional model and logistic model). Importantly, subsample analysis using Japanese firms that FDI in common law countries or developed countries can afford more profitability.

We try to examines whether a link exists between a firm's portfolio of FDI and corporate tax avoidance from the perspectives of host countries' legal system and degree

of development in Chapter 4. We use a sample of Japanese listed firms and multivariate regression models to test four hypotheses on the association between the corporate tax avoidance and the proportion of common law countries or developed countries that a firm has in its foreign direct investment portfolio. We conclude that the greater the proportion of common law countries or developed countries that a firm has in its FDI portfolio, the less likely it is to engage in tax avoidance practice. We also notice that the proportion of common law countries or developed countries in a firm's FDI portfolio reduces the effect of foreign firm ownership on the firm's tax avoidance practice. After several sensitivity tests, the findings remain unchanged.

In Chapter 5, we investigate the effects of FDI characteristics on audit fees, and the influences of homogeneity of industries on this effect. Using a sample of Japanese listed firms over the period of year 2004 to year 2014, we find that audits of companies investing in a greater number of common law countries and developing countries, respectively, will exhibit higher audit fees. Total geographic distance to host countries also increases audit fees. Further, we find that the homogeneity of industries in which a firm competes negatively moderates these relationships. Our findings are robust to several sensitivity tests.

1.3 Contributions

Chapter 2 contributes to the prior studies in several ways. Initially, Chapter 2 provides empirical evidences on the relationship between earnings qualities and FDI from the perspectives of different legal systems and degrees of development. Chapter 2 also use two different dimensions (quantity and percentage) to represent the extent of the influence of common law countries or developed countries on firms. Secondly, we use a sample of Japanese firms with and without FDI, which are then matched by PSM model. Thirdly, compared to prior research that focused on country differences in earnings quality using one aspect of earnings quality proxy, Chapter 2 is one of the first to explore country differences in earnings qualities represented by three accounting-based earnings proxies.

Chapter 3 presents some new methods and perspectives for fundamental analysis in the following ways. Firstly, previous studies always use one type of method to predict firm value[7], while this chapter uses two different kinds of methods (cross-sectional model, and logistic model) to predict the firm's intrinsic value and identify the probability of one-year-ahead earnings increase. Secondly, Chapter 3 is one of the few, if not the first, studies on the fundamental analysis based on financial statements to consider trading strategy by combining the results of two different models. Thirdly, we consider the characteristics of firms' FDI, which are not used in prior studies to improve the profitability of trading strategies.

Chapter 4 has several contributions. Firstly, Chapter 4 is one of the few research to provide detailed empirical evidence on the relationship between tax avoidance practice and the portfolio of FDI with a sample of Japanese listed firms. The results provide evidence regarding what types of FDI portfolios may lead to a negative effect on tax avoidance practice. Given the concern of the tax avoidance of multinational firms, these findings may help policy makers to improve the effect and efficiency of tax policies. Secondly, Chapter 4 adds to the literature on the investor protection (CSR practice) by providing evidence that investor protection (CSR practice) can restrain the level of tax avoidance. Moreover, Chapter 4 adds to the literature on foreign firm ownership. There is a very limited evidence on Japan in the prior literature. Salihu, Annuar, and Sheikh Obid (2015) use data on large Malaysian firms, while Fuest and Hemmelgarn (2005) discuss this topic by establishing theoretical models. They confirmed that foreign firm ownership can lead to a positive tax avoidance practice. Chapter 4 extends this area by providing empirical evidence of the effect of different types of FDI portfolio.

Chapter 5 contributes to the stream of research on audit fees, FDI characteristics, and industry homogeneity, by illustrating that auditors charge higher audit fees to clients who invest in great number of common law, developing, and geographic distance

[7] For example, Ou and Penman (1989) and Setiono and Strong (1998) predicted the signs of one-year ahead earnings changes of U.S. firms and U.K. firms with logistic model, respectively. Holthausen and Larcker (1992) predicted the signs of subsequent annual excess return measures of U.S. firms with logistic model. Chung and Kim (2001) directly predicted the price per share of Korean firms with a regression model. Goslin, Chai, and Gunasekarage (2012) build logistic models that predict the direction of one-year-ahead earnings or stock returns of New Zealand firms.

countries. The Financial Services Agency (FSA) of Japan in recent years has encouraged firms to improve FDI. Chapter 5 may be beneficial to regulators when they consider the relationship between auditors' audit fees setting and corporations' FDI characteristics. Also, Chapter 5 may be beneficial to auditors for pricing their services more competitively. The dimensions of characteristic of FDI (i.e. perspectives from the legal system, the degree of development, and geographic distance) provide a methodological contribution on enriching the research of audit fees.

The framework of the dissertation is shown in Table 1.1.

Table 1.1 Framework of the dissertation

Chapter 1 Introduction

Research question: Whether interested parties could get the implications through analyzing the characteristics of Japanese firms' FDI?

	Sub questions	Sub topics	Interested parties	Characteristics of Japanese firms' FDI	Methods	Findings	Contributions
Chapter 2	Q1: Whether FDI can lead to a high level of earnings quality?	Earnings Qualities	○Investors ○Policy makers and regulators ○Auditors	○Legal systems ○Degree of development	○Propensity score matching model is used to control the differences in firm characteristics between Japanese firms engaging in FDI and Japanese firms not engaging in FDI, ○Regression models are used to test six hypotheses on correlations amongst earnings qualities, legal systems, and degrees of development.	○FDI not only can reduce earnings management risk, but also can impair the reporting conservatism. ○Firms under greater influence of common law countries or developed countries have higher level of earnings qualities.	○It provides empirical evidences on the relationship between earnings qualities and overseas investments from the perspectives of different legal systems and degrees of development. ○It explores country differences in earnings qualities represented by three accounting-based earnings proxies.
Chapter 3	Q2: How investors use the information from financial statements of Japanese firms with FDI to gain a high stock return?	Stock Return	○Investors	○Legal systems ○Degree of development	○Cross-sectional model (logit model) is used to test the relationship between firms' stock price (one-year-ahead earnings increase) and massive of variables picked from financial statements, ○Two types of firm valuation models are developed to predict stock returns, which is suitable for the Japanese market so far. ○Three kinds of trading strategies are set based on the valuation models.	○There is a relatively higher potential for making abnormal profits by combining the results of two different models (cross-sectional model and logit model). ○Subsample analysis using Japanese firms that FDI in common law countries or developed countries can afford more profitability.	○Previous studies always use one type of method to predict firm value , while it uses two different kinds of methods (cross-sectional model, and logit model) to predict the firm's intrinsic value and identify the probability of one-year-ahead earnings increase. ○It is one of the few researches on the fundamental analysis based on financial statements to consider trading strategy by combining the results of two different models.
Chapter 4	Q3: What types of portfolio of FDI those probably lead to a negative effect on tax avoidance practice?	Tax Avoidance	○Tax Policy makers	○Legal systems ○Degree of development	○Multivariate regression models are used to test four hypotheses on the association between the corporate tax avoidance and the proportion of common law countries or developed countries that a firm has in its foreign direct investment portfolio.	○The greater the proportion of common law countries or developed countries that a firm has in its FDI portfolio, the less likely it is to engage in tax avoidance practice. ○The proportion of common law countries or developed countries in a firm's FDI portfolio reduces the effect of foreign firm ownership on the firm's tax avoidance practice.	○It provides detailed empirical evidences on the relationship between tax avoidance practice and the portfolio of FDI with the sample of Japanese listed firms. ○It adds to the literature on the investor protection (CSR practice) by providing evidence that investor protection (CSR practice) can restrain the level of tax avoidance.
Chapter 5	Q4: How auditors charge audit fees based on clients' FDI characteristics?	Audit Fees	○Auditors ○Audit regulators	○Legal systems ○Degree of development ○Geographical distance	○Multivariate regression models to examine the effects of FDI characteristics on audit fees, and the influences of homogeneity of industries on this effect.	○FDI characteristics with greater number of common law countries, developing countries, and the geographic distance to host countries will exhibit higher audit fees, respectively. ○The homogeneity of industries in which a company competes negatively moderates these relationships.	○It contributes to the stream of research on audit fees, FDI characteristics, and industry homogeneity, by illustrating that auditors charge higher audit fees to clients who invest in great number of common law, developing, and geographically distance countries. ○The dimensions of characteristics of FDI provide a methodological contribution on enriching the research of audit fees.

Chapter 6 Conclusions

Thesis statement: Interested parties could get the implications through analyzing the characteristics of Japanese firms' FDI from the perspective of legal system, degree of development, and geographical distance.

CHAPTER 2 CAN FDI IMPROVE EARNINGS QUALITY?

2.1 Overview

What reasons lead so many local firms to engage in FDI? Normally, it can be answered from two perspectives. From the firms' perspective, FDI can be an effective way to enter into overseas markets and gain important natural resources (e.g. precious metals, fossil fuels, etc.). Also firms can reduce their production cost by FDI in the overseas markets where the labor market is cheaper and the environmental of regulations are weak. On the other hand, from the host countries' perspective, FDI can offer a source of external capital and increased revenue, in return it can result in economic development. For this benefit, the host countries encourage FDI in their countries.

Nevertheless, from the interested parties' perspective, is this phenomenon good? Those firms with FDI seem to have a high reputation, but does it work for interested parties? Historically, there have been accounting scandals involving multinational firms such as Enron (2001)[8], WorldCom (2002)[9], Saytam (2009)[10] and so on, firms that had a high reputation among interested parties before the exposure of terrible news. These stories raise interested parties' suspicion that firms engaging FDI do not always have high quality accounting information. Interested parties should focus on some important indexes of earnings quality, helping themselves to decide the quality of companies' accounting statements, leading to a beneficial decision. This chapter seeks a way to recognize the relationship between FDI and earnings qualities from the perspective of countries' legal systems and degrees of development.

Managers are required to use specific accounting standards when make accounting statements. But even with rules, it is still hard to determine when and how much manipulation has taken place. There is enough noise in the accounting data to influence earnings quality. There are several methods to measure earnings quality. Dechow, Ge,

[8] The Houston-based commodities, energy and service corporation, kept huge debts off the balance sheets, which led shareholders to lose $74 billion, investors to lose their benefits, and employees to lose jobs.

[9] This telecommunications firm (now MCI, Inc.) misreported costs by capitalizing, and increased revenues with counterfeit items, which led a great number, and investors to lose countless money

[10] This Indian IT services firm made multitudinous fake revenues by $1.5 billion.

and Schrand (2010) in their review paper discuss specific proxies for earnings quality. They discussed three types of earnings qualities: properties of earnings (i.e., persistence, residuals from accrual models, smoothness, and target beating), responsiveness to earnings of investors, and earnings misstatements. This chapter will use several variables mentioned above as proxies of earnings quality to find whether FDI will improve earnings qualities or not.

La Porta et al. (1998) find that common-law countries (e.g. United States, United Kingdom, Australia, etc.) generally have stronger legal protection for investors, while French-civil-law countries (e.g. France, Brazil, etc.) and German and Scandinavian-civil-law countries (Japan, Germany, Finland, etc.) have weaker legal regimes. They document that common law countries enhance the level of shareholders protection compared to other countries. Based on this finding, the different legal systems link with a higher or lower legal protection for investors, which may lead to higher or lower earnings qualities. In this chapter, we will try to test the relationship between the FDI and earnings qualities with the perspective of legal systems.

Solow (1956) suggested that the main reasons for the low level of economic growth for developing countries are the lack of capital, weak fundamentals, and unsteady institutional structure. Rajagopalan, Sundarasen, and Rajangam (2014) indicate that investor protection and legal system of country have effects on the equity market volatility. In developed countries, investors could be more confidence for the high transparency and low possibility of corruption, which reduces volatility. Based on these findings, the different degrees of development link with weak or strong institutional structure, which may lead to higher or lower earnings qualities. In this chapter, we will further test the relationship between FDI and earnings qualities from the perspective of the host countries' degree of development.

Considering the potential threat of selection bias in research when comparing large and small groups with different characteristics, we will use propensity score matching (PSM) models, a rigorous matching method, to control for differences in firm characteristics of pair samples between Japanese firms with FDI and Japanese firms without FDI.

Empirical research on the association between FDI and earnings qualities is still limited. In this chapter, we consider the effect of earnings qualities, legal systems and degrees of development, and carry out multivariate regression tests to test 6 hypotheses about those three factors. We attempt to answer several questions: what kinds of companies engage FDI? Can FDI improve all types of earnings qualities? Do the legal systems or degree of development of the host countries effect earnings qualities?

Based on the results, we find that Japanese firms with lower advertisement expenditure, lower quick ratio, higher capital ratio, higher research and development expenditure, higher interest expense, higher fixed assets rate, higher return on asset, and larger size, have a higher tendency to engage FDI. What's more, we find that FDI can reduce earnings management risk, but also can impair the reporting conservatism. Lastly, we find that firms under greater influence of common law countries or developed countries have higher level of earnings qualities.

This chapter proceeds as follows. We develop the hypotheses in the section 2.2. The matching process, regression models, proxies of earnings qualities, and sample selection are reported in the section 2.3, and the section 2.4 offers results of this chapter. Finally, the Appendix shows the list of host countries.

2.2 Literature Review and Hypotheses Development

This chapter discusses the relationship between FDI and companies' earnings qualities. For the international context where differences in legal system, investor protection, developing degree and many other institutional factors are assumed to effect on earnings qualities differently.

2.2.1 PERSPECTIVE OF LEGAL SYSTEMS

2.2.1.1 *Earnings Management*

Haw et al. (2004) use the sample of 25,210 observations from 9 East Asian and 13 western European countries to test the income managing induced by control cash-flow divergence and whether income managing affected by legal institutions or not. They find that high level of investor protection environment has negative effect on higher income

management. Several other studies also suggest that investor protection is negatively related with earnings management (Shen and Chih, 2007; Cahan, Liu, and Sun, 2008), that is, higher level of investor protection could diminish the risk of earnings management. Additionally, La Porta et al. (1998) find that common-law countries generally have stronger legal protection for investors, while civil-law countries have weaker legal protection for investors. Using the above rationale, we formulate the first hypothesis:

H1: Firms under greater influence of common law countries have lower level of earnings management risk.

2.2.1.2 *Value Relevance of Accounting Information*

Hung (2000) use a sample of 17,743 firm-year observations for the period 1991-1997 to examine the relationship between accrual accounting system and value relevance of accounting measure. They find that higher use of accrual accounting (i.e. high value of accrual index) is negatively associated with the values relevance of earnings and return on equity (ROE), and this relationship is diminished in countries with strong shareholder protection. Defond and Hung (2007) use 29,867 firm-year observation from 26 countries for the period 1995-1999 to investigate the market reaction to earnings announcements. They find that under strong investor protection environment, earnings announcements statistically significant associated to the market reaction. Additionally, La Porta et al. (1998) documents that common law countries practice a higher level of protection on shareholders compared to other countries. Using the above rationale, we formulate the second hypothesis:

H2: Firms under greater influence of common law countries have higher level of value relevance.

2.2.1.3 *Reporting Conservatism*

In common law countries such as Australia, Canada, New Zealand, the United Kingdom and the United States, accounting practices are required more conservatism by the shareholders, auditors, and regulators (Bushman and Piotroski, 2006; Roychowdhury

and Watts, 2007). Manganaris, Florpoulos, and Smaragdi (2011) use a sample of 321 public firms that operate in the financial sector in four European countries[11] to investigate whether conservatism exists during the period of fiscal year 1999 to 2008 and whether the level of conservatism has changed during this period. They find that before the IFRS adoption, conservatism exists in all countries and that the level of conservatism has decreased after 2005 in France and Germany. In addition, they find that UK, as a common law country, exhibits the highest level of conservatism for the testing period. Using the above rationale, we formulate the third hypothesis:

H3: Firms under greater influence of common law countries have higher level of reporting conservatism.

2.2.2 PERSPECTIVE OF DEGREES OF DEVELOPMENT

2.2.2.1 *Earnings Management*

Japanese firms invest in developed countries are subject to more rigorous regulations, and are therefore exposed to a stronger investor protection environment. Leuz, Nanda, and Wysocki (2003) use the sample of 70,995 firm-year observations for the period 1990-1999 to test earnings management by different countries. They find that firm located in countries with developed stock markets, dispersed ownership, and strong legal protection show lower level of earnings management. This finding indicates that developed countries increase legal protection for investors, and strong legal protection would result in lower earnings management. Using the above rationale, we formulate the fourth hypothesis:

H4: Firms under greater influence of developed countries have lower level of earnings management risk.

2.2.2.2 *Value Relevance of Accounting Information*

[11] Three civil law European countries: Germany (127 firms), France (59 firms), and Greece (76 firms), and one common law European country: UK (23 firms)

Kang and Pang (2005) use a sample of 1,898 firm-year observations from 1993-1999 representing 41 countries to examine the relationship between disclosure transparency and the value-relevance of accounting information. They find that firms cross-listed from developed countries bring more value-relevant information because these countries are characterized to have more transparent disclosures. Similarly, developed countries investment Japanese companies are exposed to the threat of litigation for less transparent disclosures, a stricter regulatory and enforcement system than their non-FDI counterparts. Using the above rationale, we formulate the fifth hypothesis:

H5: Firms under greater influence of developed countries have higher level of value relevance.

2.2.2.3 *Reporting Conservatism*

Kung, Chih-wen, and Kieran (2008) use the samples of China, Hong Kong and Taiwan include firm-year observations for the year 1994-2003, to investigate cross-country differences in accounting conservatism. They find that compared to China and Taiwan, firms in Hong Kong show the highest level of accounting conservatism, which suggesting that political economy of different countries (i.e. developing countries and developed countries) has effect on accounting conservatism. In addition, Rajan and Zingales (2003) find that in a high corruption environment, the expectation is that legal enforcement is weak and that corporate transparency and the quality of accounting information are questionable. Therefore, it is expected that developed countries which are generally less corrupt in business practices will disclose conservative accounting information to the market. Using the above rationale, we formulate the sixth hypothesis:

H6: Firms under greater influence of developed countries have higher level of reporting conservatism.

2.3 Methods

2.3.1 MATCHING PROCESS

Many previous research use matching methods to evaluate the effect of a treatment by comparing the treated and the non-treated units (e.g. cross-country and non-cross-country, FDI and non-FDI, etc.). However, some previous research do not match the sample with a more rigorous matching method (Seetharaman, Gul, and Lynn, 2002; Choi et al., 2009). This chapter resolves the selection bias problem by using the propensity score matching (PSM) method as the research method.

In this chapter, we use the PSM model to match the sample on a broad range of firm characteristics to examine what kind of Japanese have tended to engage FDI. The PSM model matches observations based on the probability of undergoing a treatment, which in the case is the probability of Japanese firms' FDI. This model generates a sample in which both the FDI Japanese firms and without FDI Japanese firms are matched to have similar characteristics.

We use a logistic model to estimate the probability of Japanese firms engage FDI. Following prior research (Horaguchi, 1992) we estimate the propensity score using the following logistic model:

$$FDI_{i,t} = \alpha_0 + \sum_{k=1}^{8} \alpha_k COUNTROL_{K_{i,t}} + Id + Yd + \varepsilon_{i,t} \quad (1)$$

Where *CONTROL* denote FDI control variables. All of the variables are defined in Table 2.1. We include 8 FDI controls (*CAP*, *ADV*, *R&D*, *INT*, *INTEN*, *QR*, *ROA*, and *LNTA*). As shown in Table 2.1, the 8 FDI control variables contain the firm information about capital ratio, advertisement expenditure, research and development expenditure, interest expense, fixed asset ratio, quick ratio, return on asset, and size.

We use propensity score analysis with nonparametric regression (i.e. kernel-based matching). This method uses propensity scores derived from multiple matches to calculate a weighted mean that is used as a counterfactual. As such, kernel-based matching is a robust estimator (Guo and Fraser, 2009).

2.3.2 REGRESSION MODELS

The tests on six hypotheses are based on cross-sectional regressions of the each dependent variable of earnings quality (i.e. *DA*, *RELEVANCE*, and *CONSERVATISM*) on a number of test and control variables. We use the following cross-sectional regression models:

$$\left.\begin{matrix} DA_{i,t} \\ RELEVANCE_{i,t} \\ CONSERVATISM_{i,t} \end{matrix}\right\} = \alpha_0 + \alpha_1 FDI_{i,t} + \alpha_2 NUMCOMMON_{i,t} + \alpha_3 PERCOMMON + \sum_{k=1}^{12} \beta_k COUNTROL_{K_{i,t}} + Id + Yd + \varepsilon_{i,t} \quad (2)$$

$$\left.\begin{matrix} DA_{i,t} \\ RELEVANCE_{i,t} \\ CONSERVATISM_{i,t} \end{matrix}\right\} = \alpha_0 + \alpha_1 FDI_{i,t} + \alpha_2 NUMDEVELOPED_{i,t} + \alpha_3 PERDEVELOPED + \sum_{k=1}^{12} \beta_k COUNTROL_{K_{i,t}} + Id + Yd + \varepsilon_{i,t} \quad (3)$$

Each cross-sectional regression model contains three test variables. Test variable *FDI* in both model (2) and mode (3) is for testing the correlation between FDI and earnings qualities. In model (2) we use two measures to represent the extent of influence of common law countries on firms. One is the number of common law countries where firms are investing, represented by test variable *NUMCOMMON*. The other is the percentage of common law countries where firms are investing, represented by test variable *PERCOMMON*. Similarly, in model (3) we use two measures to represent the extent of influence of developed countries on firms. One is the number of developed countries where firms are investing, represented by test variable *NUMDEVELOPED*. The other is the percentage of developed countries where firms are investing, represented by test variable *PERDEVELOPED*. Quantity (i.e. *NUMCOMMON* and *NUMDEVELOPED*) and percentage (i.e. *PERCOMMON* and *PERDEVELOPED*) are two different dimensions, it is necessary to discuss the issue with these two dimensions.

Where *CONTROL* denotes earnings quality control variables. All of the variables are defined in Table 2.1. We include 12 earnings quality controls (*FEE*, *BIG4*, *REV*, *LOSS*, *LEV*, *ISSUE*, *CFO*, *FAGE*, *OC*, *SALES*, *ROA*, and *LNTA*). As shown in Table 2.1, the 12

earnings quality control variables contain the firm information about audit fees, auditor, change in receivable, loss, debt ratio, financial funding, cash flow, firm age, operating cycle, sales, return on asset, and size.

Variable definitions about model (1), (2), and (3) are displayed in Table 2.1.

Table 2.1 Definitions of variables about model (1), (2), and (3)

	Propensity Score Marching Model (1)		Regression Test Model (2) / (3)	
	Variable	Definitions	Variable	Definitions
Dependent Variables	*FDI*	Dummy variable equaling 1 if a firm engaged FDI and 0 otherwise.	*DA*	Increasing discretionary accruals t measured by performance-matched modified Jones model. The value would be replaced by 0 if discretionary accruals was minus.
			RELEVANCE	Value relevance of accounting information based on regression of annual earnings on contemporaneous stock returns over a period of at least 10 years beginning in 2005 and ending in 2014.
			CONSERVATISM	Report conservatism based on regression Basu (1997)'s model over a period of at least 10 years beginning in 2005 and ending in 2014.
Incentive Variables			*FDI*	Dummy variable equaling 1 if a firm engaged FDI and 0 otherwise.
			NUMCOMMON	The number of total common law countries where a firm was investing.
			PERCOMMON	The percentage of total common law countries where a firm was investing.
			NUMDEVELOPED	The number of total developed countries where a firm was investing.
			PERDEVELOPED	The percentage of total developed countries where a firm was investing.
Control Variables	*CAP*	Capital ratio, measured by ownership equity t / Total assets t-1.	*FEE*	The natural log of audit fees t.
	ADV	Advertisement expenditure t / net sales t.	*BIG4*	Dummy variable equaling 1 if one Big4 auditor (i.e. KPMG, EY, PwC, DTT) was engaged by the firm and 0 otherwise.
	R&D	Research and development expenditure t / net sales t.	*REV*	(Receivable t – Receivable t-1) / total assets t.
	INT	Interest expense t / debt t.	*LOSS*	Dummy variable equaling 1 if a firm was net loss at the end of year t.
	INTEN	Fixed assets t / total assets t-1.	*LEV*	(Long term debt t plus debt in current liabilities t) / total assets t-1.
	QR	Quick ratio, measured by liquid assets t / current liabilities t.	*ISSUE*	Dummy variable equaling 1 if a firm was fundraising more than 5% of total assets and 0 otherwise.
	ROA	Return on asset, measured by net income t / total assets t-1.	*CFO*	(Operating cash flow t – Operating cash flow t-1) / total assets t.
	LNTA	Natural logarithm of total assets at the end of year t.	*FAGE*	Firm's age.
			OC	The natural log of operating cycle rule, measured by log (365 / purchases × average inventories + 365 / credit sales × average accounts receivable).
			SALES	Net sales growth rate t.
			ROA	Return on asset, measured by net income t / total assets t-1.
			LNTA	Natural logarithm of total assets at the end of year t.

2.3.3 PROXIES OF EARNINGS QUALITIES

This chapter makes an attempt to investigate the relationship between 3 earnings qualities (i.e. earnings management, value relevance of accounting information, and report conservatism) and firms' FDI practice from the perspective of legal system and degree of development.

2.3.3.1 *Earnings Management*

We use increasing discretionary accrual to represent the risk of earnings management. Discretionary accruals are estimated with the performance-matched modified Jones model (Kothari, Leone, and Wasley, 2005). The model is estimated by year and by industry:

$$TA_{i,t} = \beta_0 + \beta_1(1/\text{ASSETS}_{i,t}) + \beta_2(\Delta SALES_{i,t} - \Delta REC_{i,t}) + \beta_3 PPE_{i,t} + \varepsilon_{i,t} \quad (4)$$

All of the variables are defined in Table 2.2. From model (4) we can get each firm's estimated modified discretionary accrual and we deduct the estimated modified discretionary accrual of the firm with closest return of asset in the same industry and year. The error term is the performance-matched modified discretionary accrual measure. The higher the value of increasing discretionary accrual the greater the risk of earnings management is.

2.3.3.2 *Value Relevance of Accounting Information*

In order to measure the value relevance of accounting information, we use a regression of annual earnings on stock returns over a period of at least 10 years beginning in 2005 and ending in 2014 listed as follows (Francis and Schipper, 1999; Bushman et al., 2004):

$$RET_{i,t} = \alpha_0 + \alpha_1\left(\frac{E_{i,t}}{MV_{i,t-1}}\right) + \alpha_2\left(\frac{\Delta E_{i,t}}{MV_{i,t-1}}\right) + \varepsilon_{i,t} \quad (5)$$

All of the variables are defined in Table 2.2. This model suggests that both the current earnings level and the earnings changes level have explanatory power on returns, and the relevance of earnings is measured by the coefficients of the earnings and change in earnings variables (Francis and Schipper, 1999). With higher coefficients of (α_1+α_2) presented as higher value relevance.

2.3.3.3 *Reporting Conservatism*

According to the prior studies (Basu, 1997; Pope and Walker, 1999) we use the model which measures conservatism over a period of at least 10 years beginning in 2005 and ending in 2014 as follows:

$$\frac{E_{i,t}}{MV_{i,t-1}} = \alpha_0 + \alpha_1 NGE_{i,t} + \alpha_2 RET_{i,t} + \alpha_3 NGE_{i,t} \times RET_{i,t} + \varepsilon_{i,t} \quad (6)$$

All of the variables are defined in Table 2.2. The asymmetric recognition of bad news versus good news in earnings reports can reflect the level of conservatism. Basu (1997) suggests that negative returns are recognized faster in earnings than the positive returns. Thus, the higher the value of (α_2+α_3) / α_2 the greater the level of conservatism is.

Variable definitions about model (4), (5), and (6) are displayed in Table 2.2.

Table 2.2 Definitions of variables about model (4), (5), and (6)

Earnings Quality: Discretional Accrual Model (4)		Earnings Quality: Relevance Model (5)		Earnings Quality: Conservatism Model (6)	
Variable	Definitions	Variable	Definitions	Variables	Definitions
TA	Total accruals equals (net income before extraordinary items minus operating cash flows from continuing operations t) / total assets t-1.	*RET*	The 15-month stock return ending 3 months after the end of fiscal year t.	*E/MV*	Earnings before extraordinary items, discontinued operations, and special items / Market capitalization, measured by stock price t times total share number t.
ASSETS	Total assets t-1	*E*	Earnings before extraordinary items, discontinued operations, and special items.	*NEG*	Dummy variable equal 1 if RET t is negative and 0 otherwise.
⊿SALSE	Change in sales from year t-1 to year t / total assets t-1.	*⊿E*	Change in earnings before extraordinary items, discontinued operations, and special items.	*RET*	The 15-month stock return ending 3 months after the end of fiscal year t.
⊿REC	Change in accounts receivable from year t-1 to year t / total assets t-1.	*MV*	Market capitalization, measured by stock price t times total share number t.	*NEG×RET*	Variable NEG times variable RET.
PPE	(Net property, plant and equipment in year t) / total assets t-1.				

2.3.4 SAMPLE SELECTION

Japanese firms making FDI provide an ideal opportunity to research firms operating under different legal systems and degrees of development. We use a sample of Japanese firms engaging FDI and Japanese firms not engaging FDI to account for different characteristics between these two groups. Using this data allows this chapter to provide an insight for discussing the association between FDI and earnings quality under different legal systems and degrees of development.

Table 2.3 Sample selection and description

Listed companies for fiscal years 2005 to 2014 (ending in March)	19,490	*
(less) Financial companies	-1,220	
(less) Stock data unavailable	-541	
(less) Aduditing data unavailable	-1,646	
(less) Employee data unavailable	-175	
(less) Financial data unavailable	-6,632	
(less) Relevance and conservatism data unavailable	-1,946	**
(less) Discretionary accruals data unavailable	-20	***
(less) Propensity score matching data unavailable	-80	
Full available sample	7,230	****
(less) Data unmatched	-257	*****
Propensity score matching sample	6,973	

* Downloaded data from NEEDS Database using the criteria: accounting year-end at the end of March.
** To estimate the value of relevance and conservatism requiter at least 10 years' period.
*** To estimate performance-matched modified Jones model requires more than 20 points of per year or per industry data.
**** The value of relevance and conservatism and discretionary accruals are estimated with full available sample.
***** Propensity score matching sample is matched by epanechnikov kernel model. (Bandwidth is 0.06, 5% of the treatment observations)

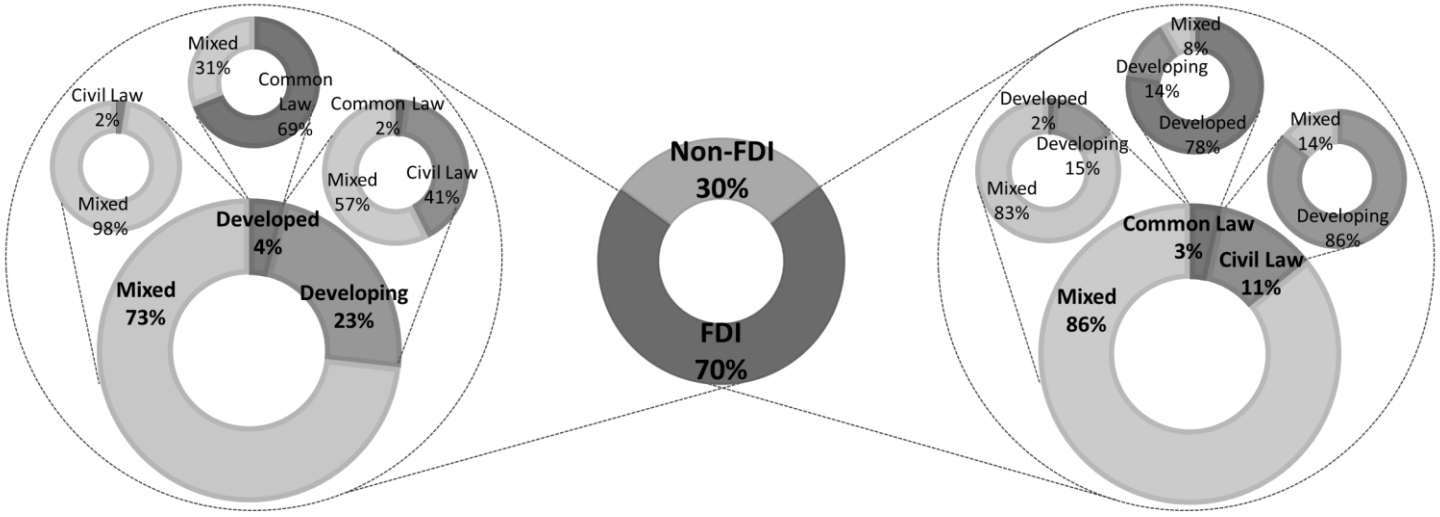
Table 2.3 presents information on the sample selection process. For the analyses, we use firm-year data from 2005-2014. Information about audit fees, auditors, and the average working age of employees is obtained from the EOL database. Information about stock and financial statements is obtained from the NEEDS Financial Quest database. Information about Japanese firms' FDI is obtained from the Toyo Keizai's Overseas Japanese Companies database. Information about the legal system is obtained from the WORLD FACTBOOK of Central Intelligence Agency. Information about the countries' degrees of development is obtained from the data center of UNCTAD. After restricting the sample to firms with the fiscal year ended as of March 31, excluding financial companies and missing data, the full available sample consists of 7,230 firm-years. Then we get the final propensity score matching sample consists of 6,973 after using matching method.

Table 2.4 Sample description by industry and year

	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		Firm-year	CAGR	
	Overseas	Non	Overseas	Non	Overseas	Non	Overseas	Non	Overseas	Non	Overseas	Non	Overseas	Non	Overseas	Non	Overseas	Non	Overseas	Non	Total	Overseas	Non
Glass and Ceramics Products	19	5	19	5	19	5	19	5	19	5	19	5	20	4	20	4	20	4	20	4	240	0.57%	-2.45%
Rubber Products	7	1	7	1	7	1	7	1	7	1	7	1	7	1	7	1	7	1	6	1	79	-1.70%	0.00%
Services	8	12	8	12	9	11	9	11	9	11	9	11	9	11	9	11	9	11	8	11	199	0.00%	-0.96%
Pulp and Paper	7	2	7	2	7	2	7	2	7	2	7	2	7	2	7	2	7	2	7	2	90	0.00%	0.00%
Pharmaceutical	7	11	7	11	7	11	7	11	7	11	7	11	7	11	7	11	7	11	7	11	180	0.00%	0.00%
Wholesale Trade	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	6	7	6	130	0.00%	0.00%
Chemicals	78	18	79	17	79	17	79	17	79	17	79	17	79	17	79	17	78	17	78	17	958	0.00%	-0.63%
Machinery	89	12	90	12	88	12	87	12	86	12	89	11	88	11	87	11	85	11	85	11	989	-0.51%	-0.96%
Metal Products	14	16	14	16	14	16	14	16	14	16	14	16	14	16	14	16	14	16	14	16	300	0.00%	0.00%
Construction	41	42	41	42	41	42	41	42	41	42	41	42	41	42	41	42	41	42	41	42	830	0.00%	0.00%
Retail Trade	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	1	5	60	0.00%	0.00%
Information & Communication	10	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	220	1.06%	-0.96%
Foods	24	23	24	23	25	22	25	22	25	22	25	22	25	22	25	22	25	22	25	22	470	0.45%	-0.49%
Oil and Coal Products	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	4	1	50	0.00%	0.00%
Textiles and Apparels	22	7	22	7	21	7	21	7	21	7	22	7	22	7	22	7	21	7	21	7	285	-0.52%	0.00%
Iron and Steel	15	18	16	17	15	18	16	17	17	16	17	16	18	15	18	15	19	14	19	14	330	2.66%	-2.75%
Electric Appliances	99	15	98	15	95	15	95	15	94	14	94	15	97	15	94	15	95	14	95	14	1103	-0.46%	-0.76%
Nonferrous Metals	13	6	13	6	13	6	13	6	14	5	14	5	14	5	14	5	14	5	14	5	190	0.83%	-2.01%
Transportation Equipment	23	4	23	4	23	4	23	4	23	4	23	4	23	4	23	4	23	4	23	4	270	0.00%	0.00%
Total	488	216	491	213	486	212	486	211	486	208	490	208	494	206	490	206	488	204	486	204	6973	-0.05%	-0.63%

Table 2.4 presents a sample description by industry and year. According to industrial classification of Tokyo Stock Exchange, there are 19 types of Japanese industries making FDI. Electric appliances, machinery, chemicals, and construction are top four industries that engaging FDI positively. The percentage of Japanese firm making FDI is around 70 percent of total Japanese listed firms.

Table 2.5 Sample description by host country and year



			2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Firm-year	CAGR		
FDI	Common law countries only	Developed countries only	9	13	13	14	15	16	14	13	13	11	131	2.25%	1.87%	-0.02%
		Developing countries only	1	3	2	4	3	3	4	2	1	1	24	0.0%		
		Mixed	1	1	2	2	2	2	1	1	1	1	14	0.00%		
	Civil law countries only	Developed countries only	0	0	0	0	0	0	0	0	0	0	0	-	-0.87%	
		Developing countries only	46	46	48	51	49	48	46	40	39	41	454	-1.27%		
		Mixed	7	7	6	8	8	8	7	8	8	8	75	1.49%		
	Mixed	Developed countries only	6	5	7	8	5	5	6	6	6	5	59	-2.01%	0.08%	
		Developing countries only	63	60	64	62	63	61	61	70	70	68	642	0.85%		
		Mixed	357	350	345	337	342	346	349	351	353	356	3,486	-0.03%		
Non-FDI			208	213	211	211	210	208	209	206	206	206	2,088			-0.11%
Total			698	698	698	697	697	697	697	697	697	697	6,973			

Table 2.5 presents a sample description by FDI country and year. From the perspective of the legal system, most of the Japanese listed firms (86%) FDI in more than two countries and where legal systems are different. Only 169 (3%) and 529 (11%) firm-years represent only common-law countries investment Japanese firms and only civil-law countries investment Japanese firms, respectively. Among the group of only common-law countries investment Japanese firms, there are over three quarters of firms choose to invest in developed countries only.

From the perspective of the degree of development, most of the Japanese listed firms (73%) FDI in more than two countries and where degrees of development are different. Only 190 (4%) and 1,120 (23%) firm-years represent only developed countries investment Japanese firms and only developing countries investment Japanese firms, respectively. Among the group of only developed countries investment Japanese firms, there are around 69% of firms choose to invest in common countries only.

As a side notice, among the final propensity score matching sample, there are 491 listed Japanese firms have FDI in 93 countries. Information of each country's legal system, degree of development, and the number of Japanese firms with FDI is listed in Appendix 2.A.

2.4 Results

2.4.1 LOGISTIC MODEL

Table 2.6 Correlations among the variables for propensity score matching

	FDI	*CAP*	*ADV*	*R&D*	*INT*	*INTEN*	*QR*	*ROA*	*LNTA*
FDI	1								
CAP	0.02	1							
ADV	-0.05	0.13	1						
R&D	0.18	0.33	0.08	1					
INT	0.10	-0.28	0.08	-0.04	1				
INTEN	0.08	0.03	0.19	0.18	-0.01	1			
QR	0.01	0.61	0.04	0.32	-0.12	-0.02	1		
ROA	0.07	0.22	0.03	0.02	-0.08	0.01	0.01	1	
LNTA	0.33	-0.09	0.02	0.13	-0.07	0.16	-0.07	0.11	1

Correlations are based on 7,230 firm-year observations.
Pearson correlations in the lower diagonal.

Table 2.6 presents the correlations among the variables for propensity score matching. There is a low level of correlation among the all variables, which means there is no multicollinearity problem.

Table 2.7 Logistic regression for estimating propensity score

FDI	Coefficient	Std. Err.	z-Value	
_cons	-8.801	0.443	-19.880	***
CAP	0.628	0.258	2.440	**
ADV	-6.103	2.434	-2.510	**
R&D	11.795	1.867	6.320	***
INT	64.688	8.408	7.690	***
INTEN	5.487	1.498	3.660	***
QR	-0.104	0.032	-3.260	***
ROA	2.417	0.732	3.300	***
LNTA	1.956	0.075	26.000	***
Id & Yd	included			
likelihood	-3140.8134			
Pseudo R-squared	0.2773			
No. Obs.	7,230			

*,**,*** Indicates significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 2.7 shows the results of the logistic regression from estimating the propensity score. The logistic model results indicate that 9 variables are significant: *CAP*, *ADV*, *R&D*, *INT*, *INTEN*, *QR*, *ROA*, and *LNTA*. It shows that Japanese firms with higher capital ratio, lower advertisement expenditure, higher research and development expenditure, higher interest expense, higher fixed assets rate, lower quick ratio, higher return on asset, and larger size, have a higher tendency to engage FDI.

Table 2.8 Results of propensity score matching

Treatment assignment	Support		
	Off support	On support	Total
Untreated	0	2,088	2,088
Treated	257	4,885	5,142
Total	257	6,973	7,230

Propensity score matching sample is matched by Epanechnikov kernel model.
(Bandwidth is 0.06, 5% of the treatment observations)

Table 2.8 shows the results of propensity score matching. The full available sample consists of 7,230 firm-years, out of which 2,088 and 5,142 firm-years represent non-FDI Japanese firms and FDI Japanese firms, respectively. After using the Epanechnikov kernel model, the propensity score matching sample consists of 6,973, out of which 2,088 and 4,885 firm-years represent non-FDI Japanese firms and FDI Japanese firms, respectively.

2.4.2 DESCRIPTIVE STATISTIC

Table 2.9 Correlations among the variables for regression model (2) and (3)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	*DA*	1																	
2.	*RELEVANCE*	-	1																
3.	*CONSERVATISM*	-	-	1															
4.	*FDI*	-0.08	0.01	-0.04	1														
5.	*NUMDEVELOPED*	-0.07	0.05	0.04	0.44	1													
6.	*PERDEVELOPED*	-0.05	0.00	0.04	0.56	0.61	1												
7.	*FEE*	-0.06	0.10	0.03	0.25	0.36	0.19	1											
8.	*BIG4*	-0.03	0.06	-0.02	0.09	0.10	0.08	0.31	1										
9.	*REV*	0.17	0.02	0.00	0.01	0.02	-0.01	-0.05	-0.02	1									
10.	*LOSS*	0.04	-0.09	-0.02	-0.04	-0.06	-0.04	0.02	-0.03	-0.23	1								
11.	*LEV*	0.03	-0.07	-0.02	-0.02	-0.04	-0.03	0.05	0.02	-0.02	0.16	1							
12.	*ISSUE*	0.03	0.01	-0.02	0.01	0.03	0.03	0.00	-0.04	0.01	0.07	0.05	1						
13.	*CFO*	-0.38	0.01	0.00	0.00	0.01	0.00	0.00	0.00	-0.13	-0.07	-0.01	0.01	1					
14.	*FAGE*	-0.06	-0.10	-0.03	0.20	0.09	0.07	0.15	0.02	-0.01	0.01	-0.03	-0.02	0.00	1				
15.	*OC*	0.01	-0.16	-0.01	0.14	0.04	0.04	-0.03	-0.04	-0.06	0.10	0.00	-0.01	-0.01	0.30	1			
16.	*SALES*	0.02	0.01	0.00	0.02	0.02	0.03	-0.06	-0.02	0.35	-0.21	-0.02	0.00	0.08	-0.05	-0.10	1		
17.	*ROA*	-0.04	0.03	0.02	0.07	0.07	0.07	-0.02	0.05	0.17	-0.48	-0.12	-0.14	0.03	-0.06	-0.10	0.19	1	
18.	*LNTA*	-0.10	0.10	0.07	0.32	0.42	0.24	0.69	0.17	0.05	-0.12	-0.01	0.00	-0.01	0.17	0.03	0.05	0.13	1

Table 2.9 presents the correlations among the variables for model (2) and (3). There is a low level of correlation among the all variables, which means there is no multicollinearity problem.

Table 2.10 Descriptive statistics

	Propensity score matching sample					FDI sample by different legal system					FDI sample by different degree of development				
	Non-FDI		FDI		Difference in Means	Non-common-law countries		Common-law countries		Difference in Means	Non-developed countries		Developed countries		Difference in Means
Variable Name	Mean	Std. Dev.	Mean	Std. Dev.	(t-statistic)	Mean	Std. Dev.	Mean	Std. Dev.	(t-statistic)	Mean	Std. Dev.	Mean	Std. Dev.	(t-statistic)
DA	0.027	0.046	0.020	0.034	6.627 ***	0.024	0.043	0.019	0.032	3.863 ***	0.023	0.041	0.020	0.032	3.243 ***
RELEVANCE	2.235	4.733	2.314	4.657	-0.640	2.155	4.546	2.352	4.683	-1.171	2.048	3.782	2.393	4.885	-2.177 **
CONSERVATISM	1.906	35.603	-8.668	152.576	3.130 ***	-42.129	324.644	-0.547	55.096	-7.595 ***	-38.068	315.149	0.078	18.607	-7.386 ***
FDI	0.000	0.000	1.000	0.000	- -	1.000	0.000	1.000	0.000	- -	1.000	0.000	1.000	0.000	- -
NUMCOMMON	0.000	0.000	1.813	1.505	-55.031 ***	0.000	0.000	2.253	1.351	-51.513 ***	0.256	0.451	2.276	1.394	-47.737 ***
PERCOMMON	0.000	0.000	0.279	0.216	-58.902 ***	0.000	0.000	0.347	0.186	-57.456 ***	0.085	0.188	0.337	0.189	-39.209 ***
NUMDEVELOPED	0.000	0.000	2.170	2.412	-41.100 ***	0.119	0.325	2.667	2.437	-32.223 ***	0.000	0.000	2.815	2.394	-39.346 ***
PERDEVELOPED	0.000	0.000	0.304	0.245	-56.744 ***	0.045	0.128	0.366	0.224	-39.209 ***	0.000	0.000	0.394	0.205	-64.347 ***
FEE	7.461	0.236	7.602	0.253	-21.768 ***	7.517	0.245	7.623	0.251	-11.691 ***	7.519	0.235	7.627	0.253	-12.714 ***
BIG4	0.678	0.467	0.766	0.423	-7.709 ***	0.745	0.436	0.771	0.420	-1.704 *	0.717	0.451	0.781	0.414	-4.445 ***
REV	0.002	0.053	0.003	0.048	-0.765	0.002	0.054	0.003	0.046	-0.172	0.002	0.056	0.003	0.045	-0.300
LOSS	0.161	0.368	0.128	0.335	3.665 ***	0.149	0.356	0.123	0.329	2.110 **	0.150	0.357	0.122	0.327	2.468 **
LEV	1.813	2.780	1.649	3.876	1.754 *	1.933	2.702	1.580	4.108	2.521 **	1.891	2.488	1.577	4.199	2.385 **
ISSUE	0.036	0.186	0.041	0.198	-0.948	0.031	0.175	0.043	0.203	-1.618	0.033	0.179	0.043	0.203	-1.485
CFO	0.002	0.086	0.002	0.057	0.141	0.001	0.068	0.002	0.055	-0.651	0.001	0.067	0.002	0.054	-0.527
FAGE	58.308	21.220	67.363	20.148	-16.915 ***	68.263	21.800	67.145	19.723	1.538	68.312	20.144	67.081	20.143	1.795 *
OC	2.084	0.244	2.143	0.170	-11.588 ***	2.157	0.151	2.140	0.175	2.770 ***	2.164	0.145	2.137	0.177	4.535 ***
SALES	0.027	0.160	0.037	0.246	-1.682 *	0.025	0.145	0.040	0.265	-1.633	0.025	0.138	0.040	0.270	-1.754 *
ROA	0.016	0.106	0.026	0.044	-5.953 ***	0.020	0.051	0.028	0.042	-4.934 ***	0.019	0.047	0.029	0.043	-6.287 ***
LNTA	4.647	0.517	5.030	0.530	-27.818 ***	4.762	0.453	5.095	0.527	-17.955 ***	4.777	0.438	5.105	0.532	-18.855 ***
No. Obs	2,088		4,885			954		3,931			1,120		3,765		
% of Total	29.9%		70.1%			19.5%		80.5%			22.9%		77.1%		

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

Propensity Score Matching sample is matched by Epanechnikov kernel model. (Bandwidth is 0.06, 5% of the treatment observations)

Table 2.10 presents the descriptive statistics for the propensity score matching sample, FDI sample by different legal system, and FDI sample by different degree of development. The propensity score matching sample consists of 6,973 firm-years, out of which 2,088 (29.9%) and 4,885 (70.1%) firm-years represent non-FDI Japanese firms and FDI Japanese firms, respectively. The FDI sample by different legal system consists of 4,885 firm-years, out of which 954 (19.5%) and 3,931 (80.5%) firm-years represent non-common-law countries investment Japanese firms and common-law countries investment Japanese firms, respectively. The FDI sample by different degree of development consists of 4,885 firm-years, out of which 1,120 (22.9%) and 3,765 (77.1%) firm-years represent non-developed countries investment Japanese firms and developed countries investment Japanese firms, respectively.

The descriptive statistics for propensity score matching sample indicate that non-FDI Japanese firms and FDI Japanese firms have significantly different earnings qualities in earnings management and reporting conservatism. The descriptive statistics for FDI sample by different legal system indicate that non-common-law countries investment Japanese firms and common-law countries investment Japanese firms have significantly different earnings qualities in earnings management and reporting conservatism. The descriptive statistics for FDI sample by different degree of development indicate that non-developed countries investment Japanese firms and developed countries investment Japanese firms have significantly different earnings qualities in earnings management, value relevance of accounting information, and reporting conservatism.

2.4.3 REGRESSION RESULTS

Table 2.11 FDI and earnings qualities (Perspective of legal systems)

	DA			RELEVANCE			CONSERVATISM		
Variables	Sign	Coef.	t-stat	Sign	Coef.	t-stat	Sign	Coef.	t-stat
cons		0.007	0.340		-3.753	-1.420		41.676	0.560
FDI		-0.003	-2.750 ***		-0.256	-1.570		-32.201	-6.990 ***
NUMCOMMON	-	-0.001	-2.000 **	+	0.160	3.020 ***	+	3.376	2.250 **
PERCOMMON	-	0.002	0.720	+	-0.317	-0.960	+	38.457	4.100 ***
FEE		0.005	1.610		1.381	3.560 ***		-23.615	-2.150 **
BIG4		-0.002	-2.020 **		0.257	1.970 **		-5.687	-1.540
REV		0.122	12.200 ***		0.915	0.700		-20.664	-0.560
LOSS		0.000	-0.220		-1.045	-5.580 ***		-5.046	-0.950
LEV		0.000	0.410		-0.081	-5.240 ***		-0.473	-1.080
ISSUE		0.006	2.950 ***		0.416	1.480		-11.460	-1.440
CFO		-0.208	-33.020 ***		0.607	0.740		-5.368	-0.230
FAGE		0.000	-0.880		-0.024	-7.580 ***		-0.017	-0.190
OC		0.010	3.560 ***		-3.164	-8.470 ***		6.999	0.660
SALES		0.003	1.390		-0.453	-1.650 *		-5.730	-0.740
ROA		-0.009	-1.340		-3.211	-3.470 ***		0.247	0.010
LNTA		-0.007	-5.540 ***		0.583	3.390 ***		26.847	5.520 ***
Id & Yd		Included			Included			Included	
Adj R-squared		0.203			0.091			0.047	
No. Obs.		6,973			6,937			6,937	

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

In Table 2.11, we find a negative and significant *FDI* coefficient of -0.003 in the left column, suggesting that the treatment effects of FDI Japanese firms are significantly different from those of non-FDI Japanese firms with respect to earnings quality in earnings management. Then we find a negative and significant *NUMCOMMON* coefficient of -0.001 in the left column, and a positive and not significant *PERCOMMON* coefficient of 0.002 in the left column, thus the H1 is supported by quantity, not percentage dimensions that firms under greater influence of common law countries (investing in more common law countries) have lower level of earnings management risk.

We also find a negative and not significant *FDI* coefficient of -0.256 in the middle column of Table 2.11, suggesting that the treatment effects of FDI Japanese firms are not significantly different from those of non-FDI Japanese firms with respect to earnings quality in value relevance of accounting information. Then we find a positive and significant *NUMCOMMON* coefficient of 0.160 in the middle column, and a negative and

not significant *PERCOMMON* coefficient of -0.317 in the middle column, thus the H2 is supported by quantity, not percentage dimensions that firms under greater influence of common law countries (investing in more common law countries) have higher level of value relevance.

The right column of Table 2.11 presents a negative and significant *FDI* coefficient of -32.201, suggesting that the treatment effects of FDI Japanese firms are significantly different from those of non-FDI Japanese firms with respect to earnings quality in reporting conservatism. Then we find a positive and significant *NUMCOMMON* coefficient of 3.376, and a positive and significant *PERCOMMON* coefficient of 38.457 in the right column, thus the H3 is supported by both quantity and percentage dimensions that firms under greater influence of common law countries (investing in more common law countries or higher percentage of common law countries) have higher level of reporting conservatism.

Table 2.12 FDI and earnings qualities (Perspective of degrees of development)

	DA			*RELEVANCE*			*CONSERVATISM*		
Variables	Sign	Coef.	t-stat	Sign	Coef.	t-stat	Sign	Coef.	t-stat
cons		0.007	0.340		-4.143	-1.560		51.469	0.690
FDI		-0.004	-3.730 ***		0.043	0.270		-28.935	-6.560 ***
NUMDEVELOPED	-	0.000	-1.830 *	+	0.067	1.950 *	+	0.343	0.350
PERDEVELOPED	-	0.004	1.760 *	+	-1.028	-3.340 ***	+	39.730	4.560 ***
FEE		0.005	1.610		1.409	3.630 ***		-24.575	-2.240 **
BIG4		-0.002	-2.080 **		0.271	2.070 **		-5.939	-1.610
REV		0.122	12.220 ***		0.849	0.650		-18.775	-0.510
LOSS		0.000	-0.220		-1.048	-5.600 ***		-4.959	-0.940
LEV		0.000	0.410		-0.081	-5.250 ***		-0.472	-1.080
ISSUE		0.006	2.940 ***		0.427	1.520		-11.150	-1.400
CFO		-0.208	-33.040 ***		0.630	0.770		-4.489	-0.190
FAGE		0.000	-0.930		-0.023	-7.510 ***		0.007	0.070
OC		0.010	3.680 ***		-3.256	-8.740 ***		5.152	0.490
SALES		0.003	1.360		-0.439	-1.600		-5.755	-0.740
ROA		-0.009	-1.320		-3.254	-3.520 ***		-0.890	-0.030
LNTA		-0.008	-5.760 ***		0.671	3.930 ***		28.630	5.930 ***
Id & Yd		Included			Included			Included	
Adj R-squared		0.203			0.091			0.046	
No. Obs.		6,973			6,937			6,937	

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

In Table 2.12, we find a negative and significant *FDI* coefficient of -0.004 in the left column, suggesting that the treatment effects of FDI Japanese firms are significantly different from those of non-FDI Japanese firms with respect to earnings quality in earnings management. Then we find a negative and significant *NUMDEVELOPED* coefficient of -0.0005, and a positive and significant *PERDEVELOPED* coefficient of 0.004 in the left column, thus the H4 is supported by quantity, not percentage dimension that firms under greater influence of developed countries (investing in more developed countries) have lower level of earnings management risk.

We find a positive, but not significant *FDI* coefficient of 0.043 in the middle column of Table 2.12, suggesting that the treatment effects of FDI Japanese firms are not significantly different from those of non-FDI Japanese firms with respect to earnings quality in value relevance of accounting information. Then we find a positive and significant *NUMDEVELOPED* coefficient of 0.067 in the middle column, and a negative and significant *PERDEVELOPED* coefficient of -1.028 in the middle column, thus the H5 is supported by quantity, not percentage dimensions that firms under greater influence of developed countries (investing in more developed countries) have higher level of value relevance.

The right column of Table 2.12 presents a negative and significant *FDI* coefficient of -28.935, suggesting that the treatment effects of FDI Japanese firms are significantly different from those of non-FDI Japanese firms with respect to earnings quality in reporting conservatism. Then we find a positive and not significant *NUMDEVELOPED* coefficient of 0.343, and a positive and significant *PERDEVELOPED* coefficient of 39.730 in the right column, thus the H6 is supported by percentage not quantity dimension that firms under greater influence of developed countries (investing in higher percentage of developed countries) have higher level of reporting conservatism.

Appendix

2.A List of host countries

Country CIA	abbr	Legal Systems	Degrees of development	Firm-year 2005-2014	From	Firm in 2014	CAGR
Algeria	DZA	Mixed law	Developing economies	9	2006	1	0.0%
Argentina	ARG	Civil law	Developing economies	145	2005	16	2.3%
Australia	AUS	Common law	Developed economies	909	2005	104	2.7%
Bahrain	BHR	Mixed law	Developing economies	27	2005	4	8.0%
Bangladesh	BGD	Mixed law	Developing economies	50	2005	8	11.5%
Belgium	BEL	Civil law	Developed economies	444	2005	48	2.0%
Bosnia and Herzegovina	BIH	Civil law	Transition economies	8	2007	1	0.0%
Brazil	BRA	Civil law	Developing economies	856	2005	104	4.0%
Brunei	BRN	Mixed law	Developing economies	9	2006	1	0.0%
Bulgaria	BGR	Civil law	Developed economies	11	2005	2	8.0%
Burma	MMR	Mixed law	Developing economies	28	2005	5	10.7%
Cambodia	KHM	Civil law	Developing economies	21	2009	6	43.1%
Canada	CAN	Common law	Developed economies	686	2005	80	3.1%
Chile	CHL	Civil law	Developing economies	128	2005	14	3.8%
China	CHN	Civil law	Developing economies	4,191	2005	454	2.0%
Colombia	COL	Civil law	Developing economies	49	2005	8	11.5%
Costa Rica	CRI	Civil law	Developing economies	24	2005	3	4.6%
Croatia	HRV	Civil law	Developed economies	14	2005	2	8.0%
Czech Republic	CZE	Civil law	Developed economies	230	2005	28	5.0%
Denmark	DNK	Civil law	Developed economies	126	2005	14	2.7%
Ecuador	ECU	Civil law	Developing economies	7	2008	1	0.0%
Egypt	EGY	Mixed law	Developing economies	34	2005	4	3.2%
El Salvador	SLV	Civil law	Developing economies	10	2005	1	0.0%
Estonia	EST	Civil law	Developed economies	10	2005	1	0.0%
Finland	FIN	Civil law	Developed economies	136	2005	14	1.7%
France	FRA	Civil law	Developed economies	828	2005	90	2.0%
Germany	DEU	Civil law	Developed economies	1,594	2005	175	2.0%
Ghana	GHA	Mixed law	Developing economies	4	2011	1	0.0%
Greece	GRC	Civil law	Developed economies	52	2005	7	6.4%
Guatemala	GTM	Civil law	Developing economies	19	2005	3	13.0%
Hong Kong		Mixed law	Developing economies	1,859	2005	200	1.6%
Hungary	HUN	Civil law	Developed economies	185	2005	21	3.1%
India	IND	Common law	Developing economies	1,182	2005	167	9.1%
Indonesia	IDN	Civil law	Developing economies	1,641	2005	197	3.4%
Iran	IRN	Other	Developing economies	10	2005	1	0.0%
Ireland	IRL	Common law	Developed economies	40	2005	4	0.0%
Israel	ISR	Mixed law	Developed economies	34	2005	5	5.8%
Italy	ITA	Civil law	Developed economies	533	2005	65	3.7%
Kazakhstan	KAZ	Civil law	Transition economies	10	2010	2	0.0%
Kenya	KEN	Mixed law	Developing economies	12	2005	2	8.0%
Korea, South	KOR	Mixed law	Developing economies	1,724	2005	194	2.5%
Kuwait	KWT	Mixed law	Developing economies	10	2005	1	0.0%
Laos	LAO	Civil law	Developing economies	29	2005	3	4.6%
Latvia	LVA	Civil law	Developed economies	10	2005	1	0.0%
Lithuania	LTU	Civil law	Developed economies	10	2005	1	0.0%
Luxembourg	LUX	Civil law	Developed economies	62	2005	7	3.8%

2.A (continued)

Country CIA	abbr	Legal Systems	Degrees of development	Firm-year 2005-2014	From	Firm in 2014	CAGR
Malaysia	MYS	Mixed law	Developing economies	1,659	2005	181	1.6%
Mauritius	MUS	Civil law	Developing economies	20	2005	2	0.0%
Mexico	MEX	Civil law	Developing economies	693	2005	91	7.1%
Mongolia	MNG	Civil law	Developing economies	4	2011	1	0.0%
Morocco	MAR	Mixed law	Developing economies	20	2005	4	16.7%
Mozambique	MOZ	Mixed law	Developing economies	1	2014	1	-
Netherlands	NLD	Civil law	Developed economies	672	2005	75	3.9%
New Zealand	NZL	Common law	Developed economies	254	2005	28	1.7%
Nigeria	NGA	Mixed law	Developing economies	44	2005	5	5.8%
Norway	NOR	Mixed law	Developed economies	95	2005	11	3.6%
Oman	OMN	Mixed law	Developing economies	10	2005	1	0.0%
Pakistan	PAK	Common law	Developing economies	29	2005	3	4.6%
Panama	PAN	Civil law	Developing economies	35	2005	5	10.7%
Papua New Guinea	PNG	Mixed law	Developing economies	10	2005	1	0.0%
Peru	PER	Civil law	Developing economies	98	2005	11	2.3%
Philippines	PHL	Mixed law	Developing economies	887	2005	101	2.2%
Poland	POL	Civil law	Developed economies	233	2005	27	4.0%
Portugal	PRT	Civil law	Developed economies	88	2005	9	1.3%
Qatar	QAT	Mixed law	Developed economies	21	2005	3	13.0%
Romania	ROU	Civil law	Developed economies	41	2005	5	2.5%
Russia	RUS	Civil law	Transition economies	269	2005	42	17.3%
Samoa	WSM	Mixed law	Developing economies	10	2005	1	0.0%
Saudi Arabia	SAU	Other	Developing economies	146	2005	20	8.0%
Senegal	SEN	Civil law	Developing economies	1	2014	1	-
Serbia	SRB	Civil law	Transition economies	15	2005	2	8.0%
Singapore	SGP	Common law	Developing economies	2,032	2005	222	1.7%
Slovakia	SVK	Civil law	Developed economies	78	2005	9	4.6%
Slovenia	SVN	Civil law	Developed economies	10	2005	1	0.0%
Solomon Islands	SLB	Mixed law	Developing economies	20	2005	2	0.0%
South Africa	ZAF	Mixed law	Developing economies	185	2005	22	6.0%
Spain	ESP	Civil law	Developed economies	503	2005	55	1.8%
Sri Lanka	LKA	Mixed law	Developing economies	46	2005	6	8.0%
Sweden	SWE	Civil law	Developed economies	230	2005	25	2.0%
Switzerland	CHE	Civil law	Developed economies	204	2005	24	5.4%
Taiwan		Civil law	Developing economies	2,188	2005	233	1.5%
Tanzania	TZA	Common law	Developing economies	20	2005	2	0.0%
Thailand	THA	Civil law	Developing economies	2,856	2005	318	2.5%
Tunisia	TUN	Mixed law	Developing economies	10	2005	1	0.0%
Turkey	TUR	Civil law	Developing economies	151	2005	20	6.9%
Ukraine	UKR	Civil law	Transition economies	22	2005	3	13.0%
United Arab Emirates	ARE	Mixed law	Developing economies	165	2005	30	14.3%
United Kingdom	GBR	Common law	Developed economies	1,345	2005	152	2.2%
United States	USA	Common law	Developed economies	3,722	2005	392	1.0%
Uruguay	URY	Civil law	Developing economies	4	2011	1	0.0%
Venezuela	VEN	Civil law	Developing economies	83	2005	9	2.8%
Vietnam	VNM	Civil law	Developing economies	1,051	2005	139	8.8%
Zambia	ZMB	Mixed law	Developing economies	1	2014	1	-

CHAPTER 3 SHOULD INVESTORS FOCUS THEIR ATTENTION ON THE FINANCIAL STATEMENT OF FIRMS WITH FDI?

3.1 Overview

Fundamental analysis seeks to determine firms' intrinsic values. Fundamental analysis estimates the correlation between the intrinsic value and the market value using data from firms' financial statements, and identifies mispriced securities[12]. Fundamental analysis based on financial statements is helpful to predict future stock return, which is already examined by a large number of studies (Chan, Hamao, and Lakonishok, 1991; Ou and Penman, 1989; Setiono and Strong, 1998; Goslin, Chai, and Gunasekarage, 2012; Chung and Kim, 2001).

Since fundamental analysis based on financial statements has been around for many years, why there is a lack of articles predicting stock return in Japan in recent years? First, it costs overseas studies a lot of time and money to access and collect data from the Japanese databases. The high cost will decrease their incentive to do that. On the other hand, although local studies can get the data comparatively easier, they still have less incentive to write and publish papers in the international journal with high impact, which may be blamed to the less competitive environment of Japanese accounting research community (Ohta, 2010). Even if some local studies did the fundamental analysis based on Japanese financial statements, they may have more incentive to maintain this proprietary information.

Kothari (2001) mentions in his review paper that there are two branches of valuation and fundamental analysis research. One is the valuation model analysis (i.e. dividend discounting, earnings capitalization, and residual income valuation models); the other is the fundamental analysis using financial ratios. Some Japanese studies (Ota et al., 2015) do the valuation model analysis and they almost published their findings on local journals where the overseas investors cannot find and understand it very well[13]. This chapter focuses on the

[12] Mispricing means that the quality of a stock has a price, which does not correctly match the intrinsic value of itself.

[13] Ota (2014) do the research on using three valuation models (i.e. Ohlson model, Feltham-Ohlson model, and Ohlson-Juettner model) to test the usefulness of historical and forecast information of financial

fundamental analysis based on Japanese financial statements (especially focus on FDI information) since few articles (both international and local papers) discuss fundamental analysis research based on the Japanese financial statements over the past decade[14].

For the fundamental analysis based on financial statements, some studies select several variables from financial statements (Abarbanell and Bushee, 1997; Chan et al., 2006; Callen, Khan, and Lu, 2013), while some studies select an abundance of variables from financial statements and refine them into a regression model (Ou and Penman, 1989; Holthausen and Larcker, 1992; Goslin, Chai, and Gunasekarage, 2012). Following prior studies discussing the stock return and numerous financial statement variables, we collect as many variables (111variables) from Japanese financial statements as possible, and classify them into four categories, thus making the variable selection more clearly and more logical.

There are two different kinds of approach to predict stock returns. One is by directly predicting the association between stock returns and information of financial statements (Holthausen and Larcker, 1992; Chung and Kim, 2001); the other is by indirectly predicting the relationship with earnings prediction signals (Ou and Penman, 1989). In addition, there are normally two kinds of models used in fundamental analysis studies. Holthausen and Larcker (1992) use the logistic model for predicting the probability of stock return increase and Chung and Kim (2001) use cross-sectional model for predicting stock price directly. However, these studies used only one type of model to predict firm value, which overlook the potential benefit that can be formed by combining the results from different models. In this chapter, we try to use the cross-sectional models for predicting stock price directly, and use the logistic models for predicting stock returns with one-year-ahead earnings change indirectly. We then combine the results of these two models for predicting stock returns and confirm whether these two models can bring more profit or not.

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statements, and find the performance of the Feltham-Ohlson model and Ohlson model within both historical and forecast information is the best.

[14] Chan, Hamao, and Lakonishok (1991) test the relationship between Japanese stock returns and four variables (i.e. earnings, size, book to market ratio, and cash flow) collected from financial statements. They find financial statement variables of Japanese firms have significant relationship with expected returns.

Chan et al. (2006) find that the discretionary accrual has effect on the future returns. Teoh, welch, and Wong (1998) find that IPO firms engaging earnings management practice in the first year reflect low stock return in the next three years. Allen, Larson, and Sloan (2013) use the modified DD model to measure the accruals and find that there exist a negative relation between accruals and future stock returns. In addition, in Chapter 2 we test the relationship between FDI and earnings quality with Japanese sample, and find that FDI in more common law countries or developed countries can reduce earnings management risk. Based on these findings, using the subsample of firm with FDI in common law countries or developed countries may lead to a better trading strategies than the full sample.

In this chapter, we use the cross-sectional model (logistic model) to test the relationship between firms' stock price (one-year-ahead earnings increase) and a massive of variables picked from financial statement, and develop two types of firm valuation models which is suitable for the Japanese market. We then construct three kinds of investment portfolios, and set three kinds of trading strategy based on each kind of portfolio.

Based on the results, we find that there is a potential for making abnormal profits by distinguishing between undervalued and overvalued stocks, and forecasting one-year-ahead earnings changes. We also find that there is a relatively higher potential for making abnormal profits by combining the results of two different models (cross-sectional and logistic model). Importantly, Comparing the results of the full sample and subsample of Japanese firms with FDI in common law countries or developed countries, subsample analysis using Japanese firms that FDI in more common law countries or developed countries can afford more profitability.

The rest of this chapter is arranged as follows. Section 3.2 presents the overview of literature on the stock return and financial statement fundamentals. Section 3.3 outlines the specification of the methodology of fundamental analysis. Section 3.4 presents the results of model estimation and model prediction. Finally, the Appendices explain the definition of variables, and dropping process of model selection.

3.2 Literature Review

Ou and Penman (1989) create the foundation of fundamental analysis by using multivariate financial ratios. They demonstrate that the earnings prediction signals are helpful in predicting stock returns. Holthausen and Larcker (1992) offer an alternative approach. They predict the stock returns with accounting information directly.

After that, several studies employ the approaches of those two pioneering studies in various markets (Setiono and Strong, 1998; Chung and Kim, 2001; Goslin, Chai, and Gunasekarage, 2012). All of the studies mentioned before, select an abundance of variables from financial statements, and refine those variables in a regression model. For a large amount of sample selection, the variables could be classified into different categories (e.g., cash flow related variables, growth related variables, and information uncertainty related variables, etc.). However, no study mentions this concern except for Chung and Kim (2001).

Compare to those studies, other studies select a small number of variables from financial statements for testing their relationship with stock returns (Callen, Khan, and Lu, 2013; Chan et al., 2006; Abarbanell and Bushee, 1997; Har and Ghafar, 2015; Penman and Zhu, 2014; Zhang, 2006).

In this section, we will separate the four parts of accounting information that we can get from financial statements, and discuss their respective relationship with stock return.

3.2.1 STOCK RETURN AND EARNINGS QUALITY

Chan et al. (2006) perform a research about earnings quality and stock returns, and they improve their tests by separating accruals into discretionary and nondiscretionary parts and find that the discretionary accrual is the main factor for predicting future returns. Callen, Khan, and Lu (2013) use three proxies to represent earnings quality[15] and find that firms'

[15] They use the three financial statement based proxies for accounting quality: AQ, special items, and earnings surprise. Here AQ is defined as the uncertainty associated with the accrual-to-cash flow mapping. Special items collected from COMPUSTAT data item 17. Earnings surprise is the difference between the consensus earnings forecast and actual earnings reported in I/B/E/S.

level of accrual quality is negative related to the price delay. They also find that compared to the low delay firms, high delay counterparts have relatively higher future stock returns. Based on the above rationale, we will test the stock return and earnings quality related variables from financial statements.

3.2.2 STOCK RETURN AND CASH FLOWS

Ou and Penman (1989) employ a logistic model to predict one-year-ahead earnings changes. They test several cash flows related variables by using multivariate logistic earnings prediction models and the estimation results show that variables of sales to total cash, cash flow to debt, and cash dividend to cash flows, are significantly related with one-year-ahead earnings changes, which are helpful in predicting stock returns. Sloan (1996) investigates the relationship between future stock prices and cash flow components of current earnings. The results demonstrate that stock prices reflect information from cash flow when it affects future earnings. Based on the above rationale, we will test the stock return and cash flows related variables from financial statements.

3.2.3 STOCK RETURN AND GROWTH POTENTIAL

Abarbanell and Bushee (1997) examine the relations between accounting based fundamental signals and security prices. Their results reveal that the growth of inventory, change in gross margin, effective tax rate, and labor force are significantly related to one-year-ahead earnings in the direction anticipated. Chung and Kim (2001) evaluate the usefulness of financial statements for investment decisions with a large sample. They classify the variables from financial statements into three categories, and they choose 29 growth related variables for the initial analysis. Twelve final variables (e.g. change in retained earnings, change in earnings per share, change in total assets, and change in sales, etc.) are

selected into the final regression model for estimating market prices[16]. Based on the above rationale, we will test the stock return and growth potential related variables from financial statements.

3.2.4 STOCK RETURN AND INFORMATION UNCERTAINTY

Chan et al. (2006) also find that change in accounts receivable and inventory is negatively related to future returns. Zhang (2006) use firm size, firm age, analyst coverage, dispersion in analyst earnings forecasts, stock volatility, and cash flow volatility to proxy for information uncertainty, and find that the information uncertainty is correlated to future returns, and the direction of this correlation is due to whether the news is good or bad. Penman and Zhu (2014) test the determinations of anomalous returns, especially focus on the risk of normal returns. The results show that a number of accounting variables, including accruals, asset growth, profitability, investment, net share issuance, and external financing, that are useful to forecast future earnings and earnings growth, as well as future stock returns. Based on the above rationale, we will test the stock return and information uncertainty related variables from financial statements.

3.3 Methods

The fundamental analysis is based on several main steps. First, we collect all of the variables from financial statements and stock price information, which will be used in models estimation. Second, we use two stages of model estimation with one test period (fiscal year 2005-2009). Third, we use estimated models for predicting *D-value* and *Pr*-value with the other test period (fiscal year 2010-2014). Then we set the trading strategies based on the *D-value*, *Pr*-value, and both values, respectively. Last, we compute two types of Buy-and-hold

[16] They separate variables into three categories that is cash flows related variables, growth related variables, and risk related variables. To obtain a parsimonious set of financial statement variables to be included in their final multiple regression, they choose such variable that the estimated coefficient in the first stage of model estimation is significant at the 5% level.

Returns (market-adjusted buy-and-hold returns, and size-adjusted buy-and-hold returns) to judge the profitability of the trading strategies.

3.3.1 SAMPLE SELECTION PROCESS

Table 3.1 Sample selection and description

Listed companies for fiscal years 2005 to 2014 (ending in March)	19,490 *
(less) Financial companies	-1,220 **
(less) Stock data unavailable	-541
(less) Firm age data unavailable	-3,749 ***
(less) Financial data and forecast data unavailable	-7,858 ****
(less) Discretionary accruals data unavailable	-10 *****
Final sample	6,112

* Downloaded data from NEEDS Database using the criteria: accounting year-end at the end of March.
** Contain banks, securities and commodities futures, insurance, and other financing business
*** Information about age of Japanese firms is obtained from the EOL database.
**** Drop the entire sample containing any unavailable data about 111 variables.
***** To estimate performance-matched modified Jones model requires more than 20 points of per year or per industry data.

Table 3.1 presents information on the sample's selection process and descriptive statistics. For the analyses, we use firm-year data from fiscal year 2005 to 2014. Information about age of Japanese firms is obtained from the EOL database. Stock data, forecast data, and financial data are obtained from the NEEDS Financial Quest database. After restricting the sample of firms with the fiscal year ended as of March 31, excluding financial companies, and missing data; the final full sample consists of 6,112 firm-year.

As mention above that we try to apply the fundamental analysis using the sample of firm with FDI in common law countries or developed countries. In addition, in Chapter 2 we also find that the high proportion of common law countries or developed countries in FDI portfolio connect with high reporting conservatism. (Lara, Osma, and Penalva, 2010) use capital asset pricing model with sample from fiscal year 1975 to 2003 and find that conservatism negatively related with stock returns. Given that high conservatism may not lead to a high stock returns, we drop the firm with high proportion of common law countries or developed countries in FDI portfolio, which positively relate with higher reporting conservatism.

3.3.2 MODEL ESTIMATION AND TEST PERIODS

In this chapter, we try to use the cross-sectional model for predicting stock returns directly, and use the logistic model for predicting stock returns with one-year-ahead earnings change indirectly.

3.3.2.1 *Cross-sectional Model for Predicting Stock Returns Directly*

To predict a firm's stock price with massive of variables from financial statement directly, we use the following cross-sectional model:

$$P_{it} = a_0 + \sum_{k=1}^{K} b_{ik} EQ_{ikt} + \sum_{l=1}^{L} c_{il} CF_{ilt} + \sum_{m=1}^{M} d_{im} GP_{imt} + \sum_{n=1}^{N} e_{in} IU_{int} + \varepsilon_{it} \quad (1)$$

where,

P_{it} = price per share for firm i after three months of the end of the fiscal year at time t;

$EQ_{ikt} = K^{\text{th}}$ proxy for the variables related to the earnings quality for firm i at time t;

$CF_{ilt} = L^{\text{th}}$ proxy for the variables related to generate cash flows for firm i at time t;

$GP_{imt} = M^{\text{th}}$ proxy for the variables related to the growth potential for firm i at time t;

$IU_{int} = N^{\text{th}}$ proxy for the variables related to the information uncertainty for firm i at time t.

3.3.2.2 *Logistic Model for Predicting Stock Returns Indirectly*

To predict a firm's stock price with massive of variables from financial statement indirectly, we use the following logistic model:

$$EI_{it} = a_0 + \sum_{o=1}^{O} b_{io} EQ_{iot} + \sum_{p=1}^{P} c_{ip} CF_{ipt} + \sum_{q=1}^{Q} d_{iq} GP_{iqt} + \sum_{r=1}^{R} e_{ir} IU_{irt} + \varepsilon_{it} \quad (2)$$

where,

EI_{it} = takes 1 if the change in year-ahead earnings per share is positive and 0 otherwise.[17]

EQ_{iot} = O th proxy for the variables related to the earnings quality for firm i at time t;

CF_{ipt} = P th proxy for the variables related to generate cash flows for firm i at time t;

GP_{iqt} = Q th proxy for the variables related to the growth potential for firm i at time t;

IU_{irt} = R th proxy for the variables related to the information uncertainty for firm i at time t.

To proxy for the *EQ*, *CF*, *GP*, and *IU* variables, we initially select 7, 25, 39, and 40 financial variables, respectively. Their definitions are shown in Appendix 3.A.

3.3.3 TWO STAGES FOR MODEL ESTIMATION AND TEST PERIODS

We constrict these accounting variables in the first stage by running a univariate cross-sectional model (logistic model) of the dependent variable *P* (*EI*) for each accounting variable. We drop the variables with significant over 10% in the univariate analysis, where the results of univariate regression are listed in Appendix 3.A. In the second stage, using a stepwise model selection, we run a multivariate cross-sectional analysis (logistic analysis), and keep the variables with significant equal or lower than 10%.

For setting the trading strategies, we need estimate the *D*-value and *Pr*-value, which will be discussed later. Using the cross-sectional model (1) estimated over the period fiscal year 2005-2009, we use financial date from 2010-2014 to predict stock price at the end of June for year 2011-2015[18]. Meanwhile, using the logistic model (2) estimated over the period fiscal year 2005-2009, we use financial date from fiscal year 2010-2014 to predict the

[17] According to the prior study (Setiono and Strong, 1998), we estimate the change in year-ahead earnings per share (*EPS*) as follows:

Where $\Delta EPS_{i,t+1}$ is the change in one-year-ahead earnings per share for firm i in year $t+1$; $EPS_{i,t}$ is the earnings per share before extraordinary items for firm i in year t; *Drift i, t+1* is the drift term (i.e. the mean *EPS* change over the four years prior to year $t+1$).

[18] Under the Japanese Financial Instruments and Exchange Act, an annual report must be submitted within three months of the end of that fiscal year. Most Japanese firms end the fiscal year on March 31 and complete their annual reports by the end of June.

probability of price per share increase for fiscal year 2011-2015. The trading strategies based on these predictions are made.

Table 3.2 Sample by Industry, Year, Estimation Period, and Prediction Period

Industry	Number of sample	Percentage of total	Model estimation period					Model prediction period				
			2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Glass and Ceramics Products	280	4.58%	27	27	27	29	29	28	29	27	28	29
Rubber Products	105	1.72%	10	10	10	10	10	11	11	11	11	11
Services	327	5.35%	24	25	29	30	35	35	36	37	36	40
Pulp and Paper	131	2.14%	13	13	13	12	12	13	13	13	14	15
Pharmaceutical	225	3.68%	21	20	24	24	26	26	25	21	18	20
Wholesale Trade	151	2.47%	8	10	14	14	17	16	15	17	20	20
Chemicals	1,015	16.61%	101	101	104	103	103	101	100	101	102	99
Machinery	557	9.11%	57	57	59	57	55	55	54	55	53	55
Metal Products	418	6.84%	39	42	43	43	42	42	43	42	42	40
Construction	844	13.81%	73	82	83	86	85	85	88	85	85	92
Mining	41	0.67%	3	3	3	3	4	4	5	5	5	6
Retail Trade	127	2.08%	6	8	10	12	11	13	14	15	16	22
Information & Communication	245	4.01%	16	16	19	26	26	28	26	29	29	30
Foods	595	9.73%	58	58	59	59	58	58	58	61	62	64
Fishery, Agriculture & Forestry	28	0.46%	2	2	3	3	3	3	3	3	3	3
Oil and Coal Products	49	0.80%	3	4	5	5	5	5	5	5	6	6
Textiles and Apparels	271	4.43%	28	29	28	27	28	27	27	26	26	25
Iron and Steel	347	5.68%	34	33	33	35	35	35	36	36	35	35
Electric Appliances	28	0.46%	3	3	3	3	3	3	3	3	2	2
Nonferrous Metals	227	3.71%	21	22	23	23	23	23	23	23	23	23
Real Estate	41	0.67%	0	0	0	2	4	6	7	7	7	8
Transportation Equipment	60	0.98%	6	6	6	6	6	6	6	6	6	6
Total	6,112	100%	553	571	598	612	620	623	627	628	629	651
					2,954					3,158		

Besides the financial firms, this study do not contain the industries as follow: Marine transportion, air transportation, warehousing and harbor transportation, electric power and gas, precision instruments, and other products.

Table 3.2 presents information on sample by industry, year, model estimation period, and model prediction period. This table reports that 22 kinds of industries are selected in this chapter, which means the samples are widely dispersed across industries. For the test period (i.e. fiscal year 2005-2014), the model estimation sample consists of 2,954 (553+571+598+612+620) from fiscal year 2005 to 2009, while the model prediction sample consists of 3,158 (623+627+628+629+651) from fiscal year 2010 to 2014.

3.3.4 D-VALUE, PR-VALUE, AND TRADING STRATEGIES

3.3.4.1 *D-value from Cross-sectional Model*

Based on the estimated cross-sectional model (1), we compute the *D*-value for firm *i* in year *t* (D_{it}) at the first trading day of the third month after the end of fiscal year (the end of June) as follows:

$$D_{it} = \frac{(\hat{a}_0 + \sum_{k=1}^{K'} \hat{b}_{ik}\, EQ_{ikt} + \sum_{l=1}^{L'} \hat{c}_{il}\, CF_{ilt} + \sum_{m=1}^{M'} \hat{d}_{im}\, GP_{imt} + \sum_{n=1}^{N'} \hat{e}_{nr}\, IU_{int}) - P_{it}}{P_{it}} \quad (3)$$

where,

EQ_{ikt} = K'^{th} selected variables related to the earnings quality for firm *i* at time *t*;

CF_{ilt} = L'^{th} selected variables related to generate cash flows for firm *i* at time *t*;

GP_{imt} = M'^{th} selected variables related to the growth potential for firm *i* at time *t*;

IU_{int} = N'^{th} selected variables related to the information uncertainty for firm *i* at time *t*.

P_{it} = observed price per share for firm *i* after three months of the end of the fiscal year at time *t*.

If the predicted price is less (greater) than the observed price (*D*-value are negative (positive)), that means the stocks are considered to be overvalued (undervalued), they will decrease (increase) in the future. Based on this logic, higher *D*-value connects with higher probability that the stock will increase in the future.

3.3.4.2 *Pr-value from Logistic Model*

The coefficients estimated from the logistic model (2) with the variables of financial statements are used for generating *Pr*-values for each firm in each year as follows:

$$\Pr_{i,t} = \frac{\exp(\hat{a}_0 + \sum_{o=1}^{O'} \hat{b}_{io}\, EQ_{iot} + \sum_{p=1}^{P'} \hat{c}_{ip}\, CF_{ipt} + \sum_{q=1}^{Q'} \hat{d}_{iq}\, GP_{iqt} + \sum_{r=1}^{R'} \hat{e}_{ir}\, IU_{irt})}{1 + \exp(\hat{a}_0 + \sum_{o=1}^{O'} \hat{b}_{io}\, EQ_{iot} + \sum_{p=1}^{P'} \hat{c}_{ip}\, CF_{ipt} + \sum_{q=1}^{Q'} \hat{d}_{iq}\, GP_{iqt} + \sum_{r=1}^{R'} \hat{e}_{ir}\, IU_{irt})} \quad (4)$$

where,

EQ_{iot} = *O'* th selected variables related to the earnings quality for firm *i* at time *t*;

CF_{ipt} = *P'* th selected variables related to generate cash flows for firm *i* at time *t*;

GP_{iqt} = *Q'* th selected variables related to the growth potential for firm *i* at time *t*;

IU_{irt} = *R'* th selected variables related to the information uncertainty for firm *i* at time *t*.

Pr-value provides an estimation for the probability of a one-year-ahead earnings increase. The range of *Pr*-value is between 1 and 0, the *Pr*-value closer to 1, means higher probability that the one-year-ahead earnings will increase in the future.

3.3.4.3 *Trading Strategies*

We place the sample 2005-2009 and 2010- 2014's *D*-value and *Pr*-value for firms into eight equally-sized portfolios (i.e. portfolios 1 to portfolio 8), which ranked from lowest to highest value. We assign the observation placed in protfolio1 as short portfolio and the observation placed in portfolio 8 as long portfolio. We then estimate returns for the long, short, and hedge positions (the difference between returns of long portfolio and short portfolio) of the trading strategy measured as of 3, 6, 12, 18, and 24 months after the start of the strategy (starting date July 1st).

3.3.5 TWO MODELS FOR BUY-AND-HOLD RETURNS

We estimate buy-and-hold market-adjusted return, and buy-and-hold size-adjusted return to judge the profitability of the trading strategies (Chung and Kim, 2001).

3.3.5.1 *Market-adjusted Buy-and-hold Returns*

The market-adjusted buy-and-hold returns for stock *i* up to month *m* (MAR_{im}) is listed as follow:

$$MAR_{im} = \prod_{t=1}^{m}(1+R_{it}) - \prod_{t=1}^{m}(1+R_{Mt}) \quad (5)$$

Where,

R_{it} = the return on common stock for firm *i* in month *t*.

RM_t = the return on the market in month *t*.

3.3.5.2 *Size-adjusted Buy-and-hold Returns*

The size-adjusted buy-and-hold return for stock *i* up to month *m* (SAR_{im}) is listed as follow:

$$SAR_{im} = \prod_{t=1}^{m}(1+R_{it}) - \prod_{t=1}^{m}(1+R_{St}) \quad (6)$$

Where,

R_{it} is mentioned earlier

RS_t = the return on the size portfolio[19] to which firm *i* belongs.

3.4 Results

3.4.1 MODEL ESTIMATION (2005-2009)

In the second stage, we run a multivariate cross-sectional analysis with all the variables kept after first stage (the results of univariate regression are listed in Appendix 3.A) by using a stepwise model selection and specifying the significance levels for variables staying in the model 10%. The dropping process of stepwise model selection for model (1) and model (2) are listed in Appendix 2.B.

[19] We rank all firms into 10 portfolios by the market capitalization, and compute the weighted return on each portfolio.

Table 3.3 Results of Stepwise Model Selection

Variables number	Accounting variables	Model estimation period (2005-2009)					
		Cross-sectional Model (1)			Logit Model (2)		
		Coef.	t value	p value	Coef.	z value	p value
Variables related to the earnings quality							
EQ2	*DA*	-	-	-	5.626	2.270	0.023 **
Variables related to generate cash flows							
CF1	*CFINVS*	125.074	10.430	0.000 ***	-	-	-
CF4	*EXSAL*	-	-	-	0.260	2.020	0.043 **
CF6	*ODTA*	-125591.6	-5.260	0.000 ***	15.162	3.910	0.000 ***
CF7	*SALEREC*	88.1	4.160	0.000 ***	0.010	2.140	0.032 **
CF14	*LABORF*	-	-	-	1.135	2.320	0.020 **
CF15	*CFSAL*	16259.6	1.940	0.052 *	-	-	-
CF16	*GROSSM*	13348.6	3.200	0.001 ***	-0.769	-1.880	0.060 *
CF18	*OISAL*	-28251.7	-2.650	0.008 ***	6.958	3.390	0.001 ***
CF21	*ROA*	-	-	-	-32.578	-7.940	0.000 ***
CF22	*OITA*	159623.7	5.410	0.000 ***	-12.782	-2.170	0.030 **
CF23	*SALETA*	-2970.9	-2.280	0.022 **	-	-	-
CF25	*GAIN*	9393.1	6.820	0.000 ***	-0.377	-1.940	0.053 *
Variables related to the growth potential							
GP3	*DIVCF*	-	-	-	-0.607	-1.700	0.089 *
GP8	*△DPS*	26.2	8.410	0.000 ***	-	-	-
GP11	*INVSTA*	-	-	-	-16.341	-5.440	0.000 ***
GP13	*ΔCAPTA*	-	-	-	-0.289	-1.870	0.061 *
GP14	*DDDIV*	-	-	-	0.351	3.610	0.000 ***
GP15	*D0DIV*	-3933.2	-2.340	0.020 **	-	-	-
GP16	*ΔEQUITY*	-11105.0	-1.920	0.055 *	-	-	-
GP17	*ΔEPS*	-	-	-	-2.554	-3.110	0.002 ***
GP18	*ΔEPS3*	-3.1	-7.490	0.000 ***	-0.0002	-2.730	0.006 ***
GP21	*ΔPRODUCT*	-	-	-	-0.621	-1.690	0.091 *
GP23	*ΔRETAIN*	-	-	-	-0.629	-2.240	0.025 **
GP25	*ΔSALE3*	10705.4	2.100	0.036 **	-1.675	-2.430	0.015 **
GP27	*ΔROECI*	-	-	-	0.287	1.760	0.079 *
GP29	*ΔROENI*	-	-	-	2.133	2.560	0.010 ***
GP39	*ΔINVSTA3*	-	-	-	24.170	5.310	0.000 ***
Variables related to the information uncertainty							
IU1	*ACCRUAL*	-	-	-	-8.867	-3.320	0.001 ***
IU2	*QUICK*	5128.2	3.320	0.001 ***	-	-	-
IU4	*WCTA*	-15345.0	-3.870	0.000 ***	-	-	-
IU5	*INVECOST*	-14958.8	-3.380	0.001 ***	-	-	-
IU6	*CURR*	-3188.8	-3.230	0.001 ***	-	-	-
IU7	*DEEC*	-1918.3	-5.100	0.000 ***	-	-	-
IU8	*LTDEC*	3838.2	3.110	0.002 ***	-	-	-
IU9	*RETEEC*	-	-	-	0.357	4.180	0.000 ***
IU14	*CASHSAL*	-21855.2	-2.700	0.007 ***	-	-	-
IU16	*DEPSAL*	-	-	-	-9.307	-3.360	0.001 ***
IU19	*INVETA*	37325.9	3.760	0.000 ***	-	-	-
IU23	*ΔDEPRECIAT*	9055.4	2.370	0.018 **	-	-	-
IU24	*AGE*	-55.7	-2.330	0.020 **	-	-	-
IU25	*MV*	-	-	-	0.567	5.880	0.000 ***
IU26	*DEPRATE*	280.8	3.750	0.000 ***	-	-	-
IU29	*LNTA*	-1079.2	-3.110	0.002 ***	-0.593	-5.530	0.000 ***
IU33	*ΔDAYREC*	-	-	-	2.172	3.580	0.000 ***
IU35	*ΔLTDEC*	-	-	-	0.749	2.590	0.010 ***
IU37	*VAREPS3*	8043.0	22.660	0.000 ***	0.082	2.380	0.017 **
	_cons	-7037.5	-1.350	0.177	-7.302	-5.920	0.000 ***
	Adj R-squared		0.339			-	
	Log likelihood		-			-1595.923	
	Pseudo R-squared		-			0.220	
	No. Obs.		2,954			2,954	

*, **, *** Indicate significance at the 0.10, 0.05, and 0.01 level.

Table 3.3 gives the results of stepwise model selection for cross-sectional model and logistic model for the estimation period (fiscal year 2005-2009). The first column of Table 3.3 reports the estimated results of final cross-sectional model with 27 financial statement variables (about 24%). The second column of Table 3.3 reports the estimated results of logistic model with 30 financial statement variables (about 27%).

As a side notice, except for 10 variables (*ODTA*, *SALEREC*, *GROSSM*, *OISAL*, *OITA*, *GAIN*, *ΔEPS3*, *ΔSALE3*, *LNTA*, and *VAREPS3*), the different variables are included in different estimate models. In addition, only 4 variables (*SALEREC*, *ΔEPS3*, *LNTA*, and *VAREPS3*) included in both models have the same sign.

3.4.2 MODEL PREDICTION (2010-2014)

3.4.2.1 *D-value and Pr-value*

Table 3.4 Statistics for *D*-value and *Pr*-value

Panel A: *D*-value						
	Obs	Mean	Std. Dev.	Min	Median	Max
2010	623	-1.509	88.148	-1174.639	3.844	730.639
2011	627	-12.371	134.547	-1654.032	0.636	1897.070
2012	628	-22.373	393.216	-8512.290	-0.203	4249.320
2013	629	-4.921	123.206	-1516.976	1.459	1734.415
2014	651	-3.904	70.599	-1152.967	1.681	369.017
2010-2014	3,158	-8.988	199.830	-8512.290	1.363	4249.320
Panel B: *Pr*-value						
	Obs	Mean	Std. Dev.	Min	Median	Max
2010	623	0.529	0.211	0.000	0.509	1.000
2011	627	0.508	0.207	0.000	0.504	1.000
2012	628	0.459	0.218	0.000	0.419	1.000
2013	629	0.449	0.216	0.000	0.408	1.000
2014	651	0.438	0.213	0.000	0.403	1.000
2010-2014	3,158	0.476	0.216	0.000	0.449	1.000

Panel A of Table 3.4 reports summary statistics for *D*-value. It shows that the mean and median of the prediction period (fiscal year 2010-2014) is -8.988 and 1.363, respectively. In addition, the mean and median of the fiscal year 2010 is the highest among the prediction period and those of the fiscal year 2012 is the lowest, respectively, which means that based

on the *D*-value, the prediction of stock return based on the fiscal year 2010 is more positive than the fiscal year 2012.

Panel B of Table 3.4 reports summary statistics for *Pr*-value. It shows that the mean and median of the prediction period (fiscal year 2010-2014) is 0.476 and 0.449. In addition, the mean and median of the fiscal year 2010 is the highest among the prediction period and those of the fiscal year 2014 is the lowest, respectively, which means that based on the *Pr*-value, the prediction of stock return based on the fiscal year 2010 is more positive than the fiscal year 2014.

3.4.2.2 *Trading Strategies*

To examine whether fundamental analysis with FDI sample can lead to a better trading strategy. We compare the results of full sample and subsample of Japanese firms with FDI in common law countries or developed countries, excluding the sample with a high proportion of common law countries or developed countries in FDI portfolio (i.e. 100% invest in common law countries or developed countries) [20]. We then implement the trading strategies for the full sample and subsample using the same procedures mentioned above, and report the results in Table 3.5, Table 3.6, and Table 3.7, respectively.

[20] Information about Japanese firms' FDI is obtained from the Toyo Keizai's Overseas Japanese Companies database. 1,350 firm-year observations are selected as subsamples for Japanese firms with FDI in common law countries or developed countries, excluding the sample with high proportion (100%) of common law countries or developed countries in FDI portfolio.

Table 3.5 Trading Strategies Based on Cross-sectional Regression Model

Panel A		Full sample (2010-2014)										
MAR		Months of holding period					SAR		Months of holding period				
D-portfolio *	no.	3	6	12	18	24	*D*-portfolio	no.	3	6	12	18	24
1	397	0.0332	0.0446	0.0030	0.1785	0.0797	1	397	-0.0017	0.0155	-0.0219	0.1032	0.0285
2	394	0.0322	0.0234	-0.0166	-0.0093	-0.0616	2	394	0.0031	0.0034	-0.0304	-0.0629	-0.0917
3	396	0.0330	0.0179	0.0026	0.0187	0.0339	3	396	0.0101	0.0052	-0.0058	-0.0137	0.0140
4	394	0.0239	-0.0027	0.0110	0.0541	0.0376	4	394	0.0063	-0.0103	0.0056	0.0329	0.0201
5	395	0.0160	-0.0072	0.0101	-0.0062	0.0065	5	395	0.0008	-0.0131	0.0012	-0.0293	-0.0131
6	395	0.0083	0.0088	0.0188	0.0203	0.0152	6	395	-0.0128	-0.0047	0.0103	-0.0127	-0.0095
7	395	0.0309	0.0028	0.0175	0.0260	-0.0057	7	395	0.0012	-0.0208	-0.0047	-0.0394	-0.0417
8	392	0.0289	0.0655	0.1003	0.1644	0.1988	8	392	-0.0063	0.0289	0.0709	0.0806	0.1548
Hedge portfolio **	789	-0.0043	0.0209	0.0973	-0.0140	0.1191	Hedge portfolio	789	-0.0046	0.0134	0.0928	-0.0226	0.1263
				(0.0000) ***		(0.0194) ****					(0.0000) ***		(0.0072) ***
Panel B		Sample with FDI in common law countries or developed countries (2010-2014)											
MAR		Months of holding period					SAR		Months of holding period				
D-portfolio	no.	3	6	12	18	24	*D*-portfolio	no.	3	6	12	18	24
1	169	0.0290	0.0326	-0.0077	0.0569	-0.0207	1	169	-0.0021	0.0151	-0.0177	0.0167	-0.0481
2	169	0.0241	0.0053	-0.0024	0.0766	0.0484	2	169	0.0071	0.0011	-0.0102	0.0536	0.0328
3	169	0.0165	-0.0030	-0.0150	0.0004	0.0354	3	169	0.0036	-0.0011	-0.0060	0.0012	0.0315
4	168	0.0222	0.0035	0.0008	-0.0297	-0.0357	4	168	0.0148	0.0049	-0.0048	-0.0337	-0.0465
5	169	0.0070	-0.0091	0.0011	-0.0887	-0.0807	5	169	-0.0037	-0.0101	0.0002	-0.1012	-0.0938
6	169	-0.0306	-0.0170	0.0131	-0.0514	-0.0558	6	169	-0.0497	-0.0233	0.0056	-0.0616	-0.0639
7	169	-0.0101	-0.0264	0.0199	-0.0048	-0.0237	7	169	-0.0339	-0.0364	0.0120	-0.0408	-0.0512
8	168	-0.0054	0.0394	0.0919	0.0981	0.1224	8	168	-0.0310	0.0120	0.0673	0.0371	0.0870
Hedge portfolio	337	-0.0343	0.0068	0.0996	0.0412	0.1432	Hedge portfolio	337	-0.0290	-0.0032	0.0851	0.0204	0.1351
				(0.0000) ***		(0.0045) ***					(0.0000) ***		(0.0039) ***

* The *D*-portfolios are formed at the ending of the third month after fiscal year end.

** To form hedge portfolio, long (short) positions are taken with stocks with *D*-portfolio = 8 (*D*-portfolio = 1).

*** The probability of obtaining a value equal to or greater than the 12-months buy-and-hold returns in 500 random replications.

**** The probability of obtaining a value equal to or greater than the 24-months buy-and-hold returns in 500 random replications.

Table 3.5 reports the results of trading strategies based on cross-sectional regression model. Panel A of Table 3.5 reports the results of the full sample, while Panel B reports the results of subsample with FDI in common law countries or developed countries. First column of each panel reports *MAR* over all stocks in each *D*-portfolio for various holding periods up to 24 months, while the second column reports the *SAR* counterpart. Reported buy-and-hold return up to each holding month represents the mean of buy-and-hold returns to each *D*-portfolio formed by the period from fiscal year 2010 to 2014. Thus, reported returns can be interpreted as the average profitability for *D*-portfolio strategies. The last line of each panel reports trading profits of the trading strategy, denoted by hedge portfolio, long (short) positions are taken with stocks with *D*-portfolio = 8 (*D*-portfolio = 1).

For the full sample, as reported in the panel A, the *MAR* (*SAR*) of hedge portfolio for all stocks (789) at 12 months is 9.73 (9.28) percent and at 24 months is 11.91 (12.63) percent,

respectively. The profitability of these hedge portfolios is significant. For the subsample with FDI in common law countries or developed countries, as reported in the panel B, the *MAR* (*SAR*) of hedge portfolio for all stocks (337) at 12 months is 9.96 (8.51) percent and at 24 months is 14.32 (13.51) percent, respectively. These magnitudes of trading profit of subsample are not only highly significant, but also much greater than trading profits of the full sample group reported in panel A. Overall, these results show that the trading strategies based on the *D*-portfolio are more profitable for subsample with FDI in common law countries or developed countries.

Table 3.6 Trading Strategies Based on Logistic Regression Model

Panel A		Full sample (2010-2014)										
MAR		Months of holding period					SAR		Months of holding period				
Pr-portfolio *	no.	3	6	12	18	24	*Pr*-portfolio	no.	3	6	12	18	24
1	397	0.0204	0.0339	0.0313	0.1157	0.0868	1	397	-0.0097	0.0066	0.0109	0.0480	0.0484
2	394	0.0366	0.0443	0.0184	0.0316	-0.0262	2	394	0.0101	0.0260	0.0011	-0.0213	-0.0621
3	396	0.0197	0.0061	0.0177	0.0522	0.0400	3	396	-0.0036	-0.0093	0.0015	0.0107	0.0105
4	394	0.0322	0.0191	0.0293	0.0569	0.0382	4	394	0.0085	0.0019	0.0166	0.0152	0.0089
5	395	0.0235	0.0037	-0.0068	0.0377	0.0345	5	395	0.0003	-0.0112	-0.0182	-0.0028	0.0072
6	395	0.0271	0.0208	-0.0069	0.0155	0.0100	6	395	0.0020	0.0054	-0.0192	-0.0205	-0.0103
7	395	0.0164	-0.0002	0.0029	-0.0223	-0.0352	7	395	-0.0080	-0.0142	-0.0065	-0.0588	-0.0559
8	392	0.0306	0.0252	0.0607	0.1594	0.1559	8	392	0.0012	-0.0013	0.0386	0.0886	0.1143
Hedge portfolio **	789	0.0102	-0.0087	0.0294	0.0437	0.0691	Hedge portfolio	789	0.0109	-0.0079	0.0277	0.0405	0.0659
				(01869)		(0.1792)					(0.0387)		(0.1612)
Panel B		Sample with FDI in common law countries or developed countries (2010-2014)											
MAR		Months of holding period					SAR		Months of holding period				
Pr-portfolio	no.	3	6	12	18	24	*Pr*-portfolio	no.	3	6	12	18	24
1	169	-0.0044	0.0060	-0.0339	-0.0392	-0.0689	1	169	-0.0309	-0.0044	-0.0327	-0.0623	-0.0646
2	169	0.0019	0.0138	0.0319	0.0161	-0.0078	2	169	-0.0145	0.0157	0.0354	-0.0098	-0.0326
3	169	0.0421	0.0615	0.0825	0.0837	0.0635	3	169	0.0191	0.0457	0.0633	0.0484	0.0399
4	168	0.0051	-0.0017	-0.0157	0.0052	-0.0336	4	168	-0.0123	-0.0063	-0.0172	-0.0124	-0.0472
5	169	0.0073	-0.0068	0.0286	0.0414	0.1030	5	169	-0.0060	-0.0115	0.0249	0.0178	0.0778
6	169	0.0109	0.0041	-0.0120	-0.0638	-0.0649	6	169	-0.0041	-0.0039	-0.0273	-0.0926	-0.0884
7	169	-0.0065	-0.0315	-0.0206	-0.0066	-0.0277	7	169	-0.0182	-0.0354	-0.0209	-0.0107	-0.0313
8	168	-0.0039	-0.0048	0.0477	0.0615	0.0515	8	168	-0.0283	-0.0260	0.0261	0.0185	0.0152
Hedge portfolio	337	0.0005	-0.0109	0.0817	0.1007	0.1204	Hedge portfolio	337	0.0026	-0.0216	0.0588	0.0807	0.0798
			(0.0000) ***		(0.0180) **					(0.0001) ***		(0.0923) *	

* The *Pr*-portfolios are formed at the ending of the third month after fiscal year end.

** To form hedge portfolio, long (short) positions are taken with stocks with *Pr*-portfolio = 8 (*Pr*-portfolio = 1).

*** The probability of obtaining a value equal to or greater than the 12-months buy-and-hold returns in 500 random replications.

**** The probability of obtaining a value equal to or greater than the 24-months buy-and-hold returns in 500 random replications.

Table 3.6 reports the results of trading strategies based on logistic regression model. Similarly, Panel A of Table 3.6 reports the results of the full sample, while Panel B reports

the results of subsample with FDI in common law countries or developed countries. First column of each panel reports *MAR* over all stocks in each *Pr*-portfolio for various holding periods up to 24 months, while the second column reports the *SAR* counterpart. Reported buy-and-hold return up to each holding month represents the mean of buy-and-hold returns to each *Pr*-portfolio formed by the period from fiscal year 2010 to 2014. Thus, reported returns can be interpreted as the average profitability for *Pr*-portfolio strategies. The last line of each panel reports trading profits of the trading strategy, denoted by hedge portfolio, long (short) positions are taken with stocks with *Pr*-portfolio = 8 (*Pr*-portfolio = 1).

For the full sample, as reported in the panel A, the *MAR* (*SAR*) of hedge portfolio for all stocks (789) at 12 months is 2.94 (2.77) percent and at 24 months is 6.91 (6.59) percent, respectively. The profitability of these hedge portfolios is not significant. For the subsample with FDI in common law countries or developed countries, as reported in the panel B, the *MAR* (*SAR*) of hedge portfolio for all stocks (337) at 12 months is 8.17 (5.88) percent and at 24 months is 12.04 (7.98) percent, respectively. These magnitudes of trading profit of subsample are not only significant, but also much greater than trading profits of the full sample group reported in panel A. Overall, these results show that the trading strategies based on the *Pr*-portfolio are more profitable for subsample with FDI in common law countries or developed countries.

Table 3.7 Trading Strategies Based on Cross-sectional and Logistic Regression Models

Table 9
TRADING STRATEGY BASED ON CROSS-SECTIONAL AND LOGIT REGRESSION MODELS

Panel A		Full sample (2010-2014)											
MAR		Months of holding period					SAR		Months of holding period				
Mix-portfolio *	no.	3	6	12	18	24	*Mix*-portfolio	no.	3	6	12	18	24
Short	52	0.0007	0.0268	-0.0653	0.0891	-0.0797	Short	52	-0.0344	-0.0032	-0.0865	0.0011	-0.1440
Others	3,011	0.0264	0.0182	0.0139	0.0483	0.0305	Others	3,011	0.0012	0.0001	-0.0012	0.0013	0.0010
Long	95	0.0215	0.0467	0.2193	0.3386	0.4227	Long	95	-0.0171	0.0154	0.2033	0.2592	0.3781
Hedge portfolio **	147	0.0208	0.0199	0.2847	0.2495	0.5024	Hedge portfolio	147	0.0173	0.0186	0.2898	0.2581	0.5221
				(0.0000) ***		(0.0000) ***					(0.0000) ***		(0.0000) ***
Panel B		Sample with FDI in common law countries or developed countries (2010-2014)											
MAR		Months of holding period					SAR		Months of holding period				
Mix-portfolio	no.	3	6	12	18	24	*Mix*-portfolio	no.	3	6	12	18	24
Short	17	0.0161	0.0118	-0.1393	-0.1538	-0.2482	Short	17	-0.0376	-0.0256	-0.1525	-0.2066	-0.2608
Others	1,301	0.0065	0.0034	0.0074	0.0004	-0.0064	Others	1,301	-0.0112	-0.0040	0.0007	-0.0221	-0.0233
Long	32	0.0064	0.0081	0.3604	0.5382	0.5099	Long	32	-0.0270	-0.0187	0.3389	0.4455	0.4297
Hedge portfolio	49	-0.0097	-0.0037	0.4997	0.6920	0.7581	Hedge portfolio	49	0.0106	0.0069	0.4914	0.6521	0.6906
				(0.0000) ***		(0.0000) ***					(0.0000) ***		(0.0000) ***

* The *Mix*-portfolios are formed at the ending of the third month after fiscal year end.
** To form hedge portfolio, long (short) positions are taken with stocks with both *D*-portfolio and *Pr*-portfolio = 8 (both *D*-portfolio and *Pr*-portfolio = 1).
*** The probability of obtaining a value equal to or greater than the 12-months buy-and-hold returns in 500 random replications.
**** The probability of obtaining a value equal to or greater than the 24-months buy-and-hold returns in 500 random replications.

Table 3.7 reports the results of trading strategies based on cross-sectional and logistic regression models. Similarly, Panel A of Table 3.7 reports the results of the full sample, while Panel B reports the results of subsample with FDI in common law countries or developed countries. First column of each panel reports *MAR* over all stocks in each *Mix*-portfolio for various holding periods up to 24 months, while the second column reports the *SAR* counterpart. Reported buy-and-hold return up to each holding month represents the mean of buy-and-hold returns to each *Mix*-portfolio formed by the period from fiscal year 2010 to 2014. Thus, reported returns can be interpreted as the average profitability for *Mix*-portfolio strategies. The last line of each panel reports trading profits of the trading strategy, denoted by hedge portfolio, long (short) positions are taken with stocks with both *D*-portfolio and *Pr*-portfolio = 8 (both *D*-portfolio and *Pr*-portfolio = 1).

For the full sample, as reported in the panel A, the *MAR* (*SAR*) of hedge portfolio for all stocks (147) at 12 months is 28.47 (29.98) percent and at 24 months is 50.24 (52.21) percent, respectively. The profitability of these hedge portfolios is highly significant, and definitely greater than the simple sum of the hedge portfolios in Table 3.5 and 3.6[21]. These

[21] For the full sample, the MAR (SAR) of the hedge portfolio for all stocks (789 + 789) at 12 months is (789×9.73+789×2.94) / (789+789) = 6.34 ((789×9.28+789×2.77) / (789+789) = 6.03) percent and at 24

results show that there is relatively higher potential for making abnormal profits by combining the results of two different models.

For the subsample with FDI in common law countries or developed countries, as reported in the panel B, the *MAR* (*SAR*) of hedge portfolio for all stocks (49) at 12 months is 49.97 (49.14) percent and at 24 months is 75.81 (69.06) percent, respectively. These magnitudes of trading profit of subsample are highly significant, and definitely greater than the simple sum of the hedge portfolios in Table 3.5 and 3.6[22]. Also, these results much greater than trading profits of the full sample group reported in panel A. Overall, these results show that compare to *D*-portfolio and *Pr*-portfolio, the trading strategies based on the *Mix*-portfolio are the most profitable. Especially for the subsample with FDI in common law countries or developed countries.

months is (789×11.91+789×6.91) / (789+789) = 9.41 ((789×12.63+789×6.59) / (789+789) = 9.61) percent, respectively.

[22] For the subsample with FDI in common law countries or developed countries, the MAR (SAR) of the hedge portfolio for all stocks (337 + 337) at 12 months is (337×9.96+337×8.17) / (337+337) = 9.07 ((337×8.51+337×5.88) / (337+337) = 7.20) percent and at 24 months is (337×14.32+337×12.04) / (337+337) = 13.18 ((337×13.51+337×7.98) / (337+337) = 10.75) percent, respectively.

Appendices

3.A Variables description and results of univariate regression

			Statistic description					Cross-sectional regression		Logit regression		
			Obs	Mean	Std. Dev.	Min	Max	coeff.	t value	coeff.	z value	
Variables related to the earnings quality												
EQ1	*DAPM*	Performance matched discretionary accruals are estimated with the performance-matched modified Jones model (Kothari, Leone, & Wasley, 2005). The model is estimated by year and by industry, scaled by lagged assets:TAi,t=α0+α1(1/ASSETSi,t)+α2(△SALESi,t-△RECi,t)+α3PPEi,t+ε. Where TA i,t is total accruals equals (net income before extraordinary items minus operating cash flows from continuing operations in year t) / total assets in year t-1; ASSETS is total assets in year t-1; ΔSALSE is change in sales from year t-1 to year t / total assets t-1; ΔREC is change in accounts receivable from year t-1 to year t / total assets in year t-1; PPE is (net property, plant and equipment in year t) / total assets in year t-1. From above model I can get each firm's estimated modified discretionary accrual and I subtract the estimated modified discretionary accrual of the closest ROA firm in the same industry and year. The resulting error term is the performance-matched modified discretionary accrual measure.	2,954	-0.014	0.067	-0.628	0.736	9555.3	0.420	-2.055	-1.24	
EQ2	*DA*	Discretional accrual estimated with the modified Jones model (Dechow, Sloan, & Sweeney, 1995) TAi,t=α0+α1(1/ASSETSi,t)+α2(△SALESi,t-△RECi,t)+α3PPEi,t+ε.	2,954	0.486	0.500	0.000	1.000	25575.5	3.260 **	-6.763	-10.24	***
EQ3	*BENCHMARK*	Benchmark. Dummy variable equaling 1 if 0 < ((net income t – 0) / total assets t-1) < 0.05 or 0 < ((net income t – net income t-1) / total assets t-1 < 0.05) or 0 < ((net income t – Manager's expected net income t) / total assets t-1) < 0.05 and 0 otherwise.	2,954	0.004	0.010	0.000	0.396	-1313.9	-1.250	-0.029	-0.39	
EQ4	*ES*	Earnings surprise, ES is the absolute value of annual earnings surprise scaled by total assets t-1.	2,954	0.000	0.000	0.000	0.000	81999.7	1.610	4.151	1.03	
EQ5	*STANDARD*	Accounting standard dummy	2,954	1.140	3.029	0.007	84.182	-	-	-	-	
EQ6	*SMOOTHNESS*	Smoothness. According to the prior researches (Leuz, Nande, & Wysocki, 2003) I use the model which measures smoothness over a period of 3 years as follows: SMOOHNESS=σ(Ei,t)/σ(CFOi,t). Where E i,t is net income before extraordinary items in year t; CFO i,t is operating cash flows from continuing operations in year t.	2,954	0.063	0.671	-1.000	1.000	-127.9	-0.740	0.018	1.34	
EQ7	*PERSISTENCE*	Persistence. According to the prior researches (Francis et al., 2004) I use the model which measures persistence over a period of 3 years as follows: EPSi,t=α0+α1EPSi,t-1+ε. Where EPS i,t is net income before extraordinary items in year t / average number of shares outstanding in year t. The coefficient of α1 is the persistence measure.	2,954	2.093	36.288	0.012	1962.000	-115.4	-0.150	-0.116	-2.11	*

3.A (continued)

			Statistic description					Cross-sectional regression			Logit regression		
Variables related to generate cash flows													
CF1	*CFINVS*	Cash flow / (investment in machines and equipment + inventory + dividend)	2,954	0.631	325.610	-10998.600	8528.600	169.0	11.930	***	0.018	1.71	
CF2	*SALEWC*	Sales to working capital	2,954	0.209	0.304	-7.719	3.311	0.0	-0.010		0.000	1.01	
CF3	*ODEC*	(Operating income + depreciation) / Equity capital	2,954	0.548	0.483	-0.186	7.169	2338.5	1.350		-1.167	-5.32	***
CF4	*EXSAL*	(Operating expenses - depreciation) / sales	2,954	0.035	0.159	-6.239	0.526	-376.0	-0.350		0.700	8.71	***
CF5	*IBTSAL*	Income before taxes / sales	2,954	0.086	0.098	-3.608	0.461	7676.9	2.320	*	-	-	
CF6	*ODTA*	(Operating income + depreciation) / Total assets	2,954	6.822	24.389	0.706	966.061	19234.8	3.590	***	-7.124	-9.38	***
CF7	*SALEREC*	Sales to accounts receivable	2,954	0.201	1.468	-37.291	23.413	131.9	6.150	***	0.011	2.6	**
CF8	*NICF*	Net income / cash flow	2,954	0.082	0.325	-7.793	2.008	274.4	0.770		-	-	
CF9	*ROECI*	Current income / equity capital	2,954	0.013	0.451	-8.534	9.843	4070.1	2.520	*	-	-	
CF10	*ROENI*	Net income /equity capital	2,954	0.089	0.294	-7.725	1.415	1389.5	1.190		-	-	
CF11	*ROEOI*	Operating income / equity capital	2,954	2.774	6.248	0.291	296.458	4338.1	2.430	*	-	-	
CF12	*SALEFA*	Sale to fixed assets	2,954	31.805	289.509	0.933	10633.000	97.5	1.160		-0.009	-0.97	
CF13	*INVETUR*	Inventory turnover=Sales / Inventory	2,954	0.015	0.146	-2.281	0.706	20.2	11.360	***	0.000	1.02	
CF14	*LABORF*	Labor force,((sales t-1 / No. of Employees t-1) - (sales t / No. of Employees t))/ (sales t-1 / No. of Employees t-1)	2,954	0.135	0.121	0.005	1.342	6136.1	1.700		3.474	11.24	***
CF15	*CFSAL*	Cash flow / sales	2,954	0.236	0.175	-4.588	0.960	22998.0	5.320	***	0.982	3.16	**
CF16	*GROSSM*	gross margin=(sales - cost of goods) / sales	2,954	0.014	0.152	-6.244	0.348	18301.9	6.140	***	-0.694	-2.88	**
CF17	*NISAL*	Net income / sales	2,954	0.044	0.145	-6.174	0.549	4145.2	1.200		-	-	
CF18	*OISAL*	Operating income / sales	2,954	0.000	0.000	0.000	0.000	9379.9	2.590	**	-8.031	-11.05	***
CF19	*TREASTOCK*	Purchase of treasury stock as % of stock	2,954	0.117	0.077	0.006	0.613	-9.95E+09	-0.710		264463	0.27	
CF20	*CFTA*	Cash flow / Total assets	2,954	0.013	0.120	-3.652	0.498	60578.5	9.020	***	1.321	2.76	**
CF21	*ROA*	Net income / total assets	2,954	0.042	0.096	-3.611	0.434	8950.2	2.040	*	-21.470	-16.67	***
CF22	*OITA*	Operating income / total assets	2,954	1.048	0.475	0.174	6.179	23836.6	4.360	***	-11.790	-12.92	***
CF23	*SALETA*	Sales / total assets	2,954	0.308	0.396	0.010	8.425	4409.1	3.990	***	0.015	0.19	
.	*CFDEBT*	Cash flow to total debt	2,954	0.816	0.388	0.000	1.000	8316.6	6.300	***	0.156	1.62	
CF25	*GAIN*	Dummy (one of net income < 0 and zero otherwise)	2,954	-0.024	0.061	-1.348	0.182	3581.1	2.640	**	-2.066	-16.64	***

3.A (continued)

			Statistic description					Cross-sectional regression			Logit regression		
Variables related to the growth potential													
GP1	*⊿INVSTA*	(Investment in machine and equipment + △inventory + other investment) / total assets	2,954	-0.004	0.451	-8.534	9.843	2986.0	0.350		-5.572	-7.07	***
GP2	*NICDEC*	(Net income - cash dividend) / Equity capital	2,954	0.105	0.181	0.000	6.811	1345.7	1.150		-	-	
GP3	*DIVCF*	Cash dividend / Cash flow	2,954	0.031	0.344	-1.000	1.000	-1663.6	-0.570		-1.007	-3.27	**
GP4	*⊿WC*	% △ in working capital	2,954	0.614	11.335	-64.947	370.191	1142.2	0.750		-0.558	-5.06	***
GP5	*⊿ROENI3*	Average △ in ROENI / average of ROENIs over the past three years	2,954	0.171	18.838	-932.000	281.000	-9.3	-0.200		0.002	0.65	
GP6	*CFDIVNI*	Cash dividend / Net income	2,954	-1.799	51.054	-2688.000	252.000	0.3	0.010		-0.002	-0.84	
GP7	*INVSNI*	Investment in machine and equipment / net income	2,954	2.341	137.673	-2856.860	3180.600	2.2	0.210		0.002	0.76	
GP8	*⊿DPS*	△ in Dividend per share, Dividend per share t-Dividend per share t-1	2,954	0.006	0.163	-1.000	1.000	32.1	8.500	***	0.000	-0.63	
GP9	*⊿R&DSAL*	% △ in R&D / sales	2,954	0.019	0.031	0.000	0.307	1142.1	0.350		0.199	0.88	
GP10	*R&DSAL*	R&D expenditures / sales	2,954	0.020	0.032	0.000	0.378	4675.4	0.280		1.703	1.44	
GP11	*INVSTA*	Investment in machine and equipment / total assets	2,954	0.016	0.020	0.000	0.201	-525.7	-0.030		3.123	2.69	**
GP12	*R&DTA*	R&D expenditures / total assets	2,954	-0.017	0.316	-1.000	1.000	-47607.8	-1.800		2.047	1.11	
GP13	*⊿CAPTA*	% △ in capital expenditure / total assets	2,954	0.361	0.480	0.000	1.000	-652.6	-0.390		-0.903	-7.48	***
GP14	*DDDIV*	Dummy (one if decreases in dividend and zero otherwise)	2,954	0.901	0.299	0.000	1.000	-2879.2	-2.630	**	0.866	11.02	***
GP15	*D0DIV*	Dummy (one if no dividend and zero otherwise)	2,954	0.009	0.097	-1.000	1.000	-3780.1	-2.150	*	-0.269	-2.17	*
GP16	*⊿EQUITY*	% △ in equity capital	2,954	-0.035	0.541	-1.000	1.000	20583.7	3.790	***	-7.959	-12.74	***
GP17	*⊿EPS*	% △ in earnings per shares	2,954	-79.788	1094.479	-29805.400	8551.270	1713.9	1.760		-0.803	-11.08	***
GP18	*⊿EPS3*	Average △ in earnings per shares over the past three years	2,954	-0.007	0.140	-0.997	0.882	-6.4	-13.780	***	0.000	-4.03	***
GP19	*⊿INVENTORY*	% △ in inventory	2,954	-0.001	0.160	-0.922	0.936	5372.5	1.430		-1.826	-6.41	***
GP20	*⊿LTDEBT*	% △ in long term debt	2,954	0.012	0.141	-1.000	1.000	743.9	0.230		0.908	3.88	***
GP21	*⊿PRODUCT*	% △ in Production	2,954	0.003	0.158	-1.000	1.000	-2446.0	-0.660		-0.935	-3.22	**
GP22	*⊿R&D*	% △ in R&D	2,954	0.028	0.240	-1.000	1.000	2892.9	0.870		-1.242	-4.87	***
GP23	*⊿RETAIN*	% △ in retained earnings	2,954	-0.002	0.080	-0.650	0.588	5798.5	2.650	**	-3.642	-12.3	***
GP24	*⊿SALE*	% △ in sales	2,954	0.031	0.098	-0.766	0.530	17079.3	2.600	**	-6.682	-11.67	***
GP25	*⊿SALE3*	Average △ in sales / average of sales over the past three years	2,954	0.021	0.127	-1.834	1.432	40152.5	7.550	***	-4.858	-10.89	***
GP26	*⊿TA3*	Average △ in total assets / average of total assets over the past three years	2,954	-0.057	0.422	-1.000	1.000	29921.8	7.300	***	-2.617	-7.02	***
GP27	*⊿ROECI*	% △ ROECI	2,954	-0.011	0.137	-1.000	1.000	1965.3	1.580		-0.670	-7.37	***
GP28	*⊿GROSSM*	% △ in GROSSM	2,954	-0.055	0.536	-1.000	1.000	4043.2	1.050		-1.363	-4.54	***
GP29	*⊿ROENI*	% △ in ROENI	2,954	-0.045	0.535	-1.000	1.000	1562.5	1.590		-0.769	-10.55	***
GP30	*⊿NISAL*	% △ in NISAL	2,954	-0.041	0.510	-1.000	1.000	1924.7	1.960		-0.781	-10.68	***
GP31	*⊿IBTSAL*	% △ in IBTSAL	2,954	-0.056	0.418	-1.000	1.000	1857.4	1.800		-0.807	-10.49	***
GP32	*⊿ROEOI*	% △ in ROEOI	2,954	-0.047	0.415	-1.000	1.000	1995.8	1.580		-0.682	-7.42	***
GP33	*⊿OISAL*	% △ in OISAL	2,954	-0.045	0.418	-1.000	1.000	2716.6	2.140	*	-0.706	-7.62	***
GP34	*⊿OITA*	% △ in OITA	2,954	-0.020	0.348	-1.000	1.000	2085.3	1.660		-0.764	-8.24	***
GP35	*⊿SALEWC*	% △ in SALEWC	2,954	0.005	0.136	-0.852	0.994	968.6	0.640		-0.023	-0.22	
GP36	*⊿INVETUR*	% △ in INVETUR	2,954	-0.003	0.076	-0.694	0.693	-730.3	-0.190		-0.116	-0.43	
GP37	*⊿SALETA*	% △ in SALETA	2,954	0.040	0.304	-1.000	1.000	-7862.8	-1.140		-3.365	-6.32	***
GP38	*⊿CAPTALAG*	△CAPTA, one-year lag, growth13	2,954	0.014	0.023	0.000	0.270	-1066.1	-0.620		-0.079	-0.65	
GP39	*⊿INVSTA3*	Average of % △ in INVSTA over the past three years	2,954	-0.029	0.054	-0.671	0.627	-2574.4	-0.110		17.900	9.28	***

3.A (continued)

			Statistic description					Cross-sectional regression		Logit regression	
Variables related to the information uncertainty											
IU1	*ACCRUAL*	Net income before extraordinary items minus operating cash flows from continuing operations t / total assets t-1.	2,954	1.362	1.153	0.128	37.164	-6800.9	-0.700	-6.662	-8.19 ***
IU2	*QUICK*	= (current assets - inventory)/ current debt	2,954	0.735	0.463	-0.194	4.297	1758.7	3.860 ***	0.025	0.76
IU3	*TANSAL*	(Tangible assets - current liabilities) / sales	2,954	0.157	0.172	-0.980	1.891	-643.4	-0.570	0.163	2.04 *
IU4	*WCTA*	Working capital / total assets	2,954	0.193	0.167	0.000	2.927	7413.1	2.430 *	0.517	2.39 *
IU5	*INVECOST*	Inventory / costs of good sold	2,954	1.779	1.696	0.176	64.476	-8940.5	-2.830 **	0.036	0.16
IU6	*CURR*	Current assets / current liability	2,954	1.774	2.485	-4.241	46.616	641.6	2.070 *	0.017	0.73
IU7	*DEEC*	Debt / equity capital	2,954	0.520	0.689	-1.496	15.259	-427.3	-2.020 *	0.029	1.87
IU8	*LTDEC*	Long term debt to equity capital	2,954	0.449	0.881	-24.530	4.876	-1695.4	-2.220 *	0.213	3.48 ***
IU9	*RETEEC*	Retained earnings / equity capital	2,954	1.076	0.730	-0.945	24.466	-315.3	-0.530	-0.148	-2.63 **
IU10	*EFA*	Equity to fixed assets	2,954	181.412	1649.357	-918.500	55106.000	2875.5	4.000 ***	-0.094	-1.62
IU11	*INTCOV*	Earnings before interest and taxes (EBIT) / interest expense	2,954	0.930	19.143	-0.017	812.500	0.2	0.650	0.000	-1.61
IU12	*ISSLTDEBT*	Issuance of long term debt as % of total long term debt	2,954	0.210	0.919	0.000	47.733	28.6	1.040	0.003	1.00
IU13	*PAYLTDEBT*	Repayment of long term debt as % of total long term debt	2,954	0.130	0.117	0.003	1.129	1304.2	2.280 *	-0.051	-0.75
IU14	*CASHSAL*	Cash and deposits / sales	2,954	0.572	0.255	0.093	4.827	17669.7	3.930 ***	1.346	4.13 ***
IU15	*CASAL*	Current assets / sales	2,954	0.050	0.033	0.000	0.440	-1961.2	-0.950	0.121	0.84
IU16	*DEPSAL*	Depreciation / sales	2,954	0.556	0.361	0.003	3.436	-48872.8	-3.050 **	8.504	7.05 ***
IU17	*FASAL*	Fixed assets / sales	2,954	88.848	39.222	0.378	516.718	-1200.3	-0.820	0.230	2.24 *
IU18	*DAYREC*	Days sales in accounts receivable = 365*receivable / sales	2,954	0.126	0.075	0.000	0.773	-80.3	-6.020 ***	-0.003	-2.71 **
IU19	*INVETA*	Inventory / total asset	2,954	0.250	0.288	-7.458	0.886	-28416.4	-4.060 ***	-0.928	-1.88
IU20	*RETETA*	Retained earnings / total assets	2,954	0.525	0.191	0.013	1.595	-1616.7	-0.880	-0.354	-2.41 *
IU21	*DETA*	Debt / total assets	2,954	7.086	1.535	2.097	13.130	-9569.6	-3.470 ***	0.079	0.41
IU22	*VARCF3*	ln (variance of cash flow in the past 3 years)	2,954	0.026	0.119	-0.881	0.914	111.6	0.330	-0.026	-1.08
IU23	*⊿DEPRECIAT*	% △ in depreciation	2,954	63.374	21.969	3.000	129.000	17296.6	3.930 ***	0.378	1.22
IU24	*AGE*	Firm age	2,954	24.060	1.668	18.765	29.558	-357.1	-15.500 ***	-0.002	-0.97
IU25	*MV*	ln(Market capitalization)	2,954	15.018	6.992	3.530	96.050	500.5	1.590	-0.109	-4.88 ***
IU26	*DEPRATE*	Rate of depreciation	2,954	11.115	1.407	6.402	15.390	790.3	10.700 ***	0.029	4.74 ***
IU27	*LNSAL*	ln (sales)	2,954	0.001	0.063	-0.669	0.527	-779.9	-2.090 *	-0.088	-3.32 ***
IU28	*⊿TA*	% △ in total assets	2,954	11.153	1.402	6.708	15.492	38552.1	4.660 ***	-5.053	-7.56 ***
IU29	*LNTA*	ln (total asset)	2,954	0.040	0.349	-1.000	1.000	-1103.8	-2.950 **	-0.080	-3.02 **
IU30	*⊿WCTA*	% △ in WCTA	2,954	0.018	0.076	-0.524	0.492	982.4	0.650	-0.393	-3.68 ***
IU31	*⊿DEPRATE*	% △ in DEPRATE	2,954	0.009	0.088	-0.829	0.772	6935.9	1.000	0.801	1.64
IU32	*⊿CURR*	% △ in CURR	2,954	-0.004	0.107	-0.753	0.942	-173.4	-0.030	-1.525	-3.5 ***
IU33	*⊿DAYREC*	% △ in DAYREC	2,954	-0.013	0.120	-1.000	1.000	-2830.6	-0.570	1.494	4.2 ***
IU34	*⊿DEEC*	% △ in DEEC	2,954	-0.009	0.182	-1.000	1.000	-3584.4	-0.820	3.145	8.65 ***
IU35	*⊿LTDEC*	% △ in LTDEC	2,954	0.011	0.098	-0.811	0.795	-4980.4	-1.720	2.095	9.24 ***
IU36	*⊿QUICK*	% △ in QUICK	2,954	2.972	1.481	-1.987	9.758	729.1	0.140	-0.463	-1.23
IU37	*VAREPS3*	ln (variance of EPS in the past three years)	2,954	-3.520	1.357	-8.005	5.299	9124.4	29.140 ***	0.215	8.07 ***
IU38	*VARROENI3*	ln (variance of ROENI in the past three years)	2,954	0.705	14.625	-438.906	377.913	-75.9	-0.200	0.273	9.41 ***
IU39	*MAXROENI*	Maximum ROENI in the past three years / average ROENI in the past three years	2,954	1.500	18.452	-406.786	528.138	-6.7	-0.180	-0.004	-1.46
IU40	*MINROENI*	Minimum ROENI in the past three years / average ROENI in the past three years						5.2	0.180	0.005	1.84

"-" Convergence not achieved

Δ for the variable concerned, say X, is defined as (Xt – Xt-1) where X denotes the variable concerned, respectively.

%Δ for the variable concerned, say X, is defined as (Xt – Xt-1) / (|Xt| – |Xt-1|) where X denotes the variable concerned, respectively.

*,**,*** Indicates significance at the 0.10, 0.05 and 0.01 levels, respectively.

3.B Dropping process for stepwise model selection

Begin with full cross-sectional model (1) (2005-2009)			
p = 0.1666 >= 0.1000	removing	*IU10*	*EFA*
p = 0.1685 >= 0.1000	removing	*IU28*	*⊿TA*
p = 0.1776 >= 0.1000	removing	*GP24*	*⊿SALE*
p = 0.2037 >= 0.1000	removing	*IU21*	*DETA*
p = 0.2653 >= 0.1000	removing	*GP33*	*⊿OISAL*
p = 0.2775 >= 0.1000	removing	*CF11*	*ROEOI*
p = 0.3025 >= 0.1000	removing	*CF9*	*ROECI*
p = 0.3686 >= 0.1000	removing	*CF21*	*ROA*
p = 0.4454 >= 0.1000	removing	*GP23*	*⊿RETAIN*
p = 0.5655 >= 0.1000	removing	*CF13*	*INVETUR*
p = 0.6066 >= 0.1000	removing	*IU27*	*LNSAL*
p = 0.6637 >= 0.1000	removing	*CF20*	*CFTA*
p = 0.6667 >= 0.1000	removing	*IU16*	*DEPSAL*
p = 0.7914 >= 0.1000	removing	*GP14*	*DDDIV*
p = 0.7943 >= 0.1000	removing	*EQ2*	*DA*
p = 0.8003 >= 0.1000	removing	*IU18*	*DAYREC*
p = 0.8959 >= 0.1000	removing	*GP26*	*⊿TA3*
p = 0.9435 >= 0.1000	removing	*CF24*	*CFDEBT*
p = 0.9585 >= 0.1000	removing	*IU13*	*PAYLTDEBT*
p = 0.9738 >= 0.1000	removing	*CF5*	*IBTSAL*

Begin with full logit model (2) (2005-2009)			
p = 0.9101 >= 0.1000	removing	*IU38*	*VARROENI3*
p = 0.9084 >= 0.1000	removing	*GP19*	*⊿INVENTORY*
p = 0.8898 >= 0.1000	removing	*GP4*	*△WC*
p = 0.8858 >= 0.1000	removing	*EQ7*	*PERSISTENCE*
p = 0.8850 >= 0.1000	removing	*GP16*	*△EQUITY*
p = 0.7957 >= 0.1000	removing	*GP15*	*D0DIV*
p = 0.7834 >= 0.1000	removing	*IU14*	*CASHSAL*
p = 0.7390 >= 0.1000	removing	*GP26*	*⊿TA3*
p = 0.6077 >= 0.1000	removing	*GP34*	*⊿OITA*
p = 0.5901 >= 0.1000	removing	*GP24*	*⊿SALE*
p = 0.5673 >= 0.1000	removing	*GP31*	*⊿IBTSAL*
p = 0.5264 >= 0.1000	removing	*CF15*	*CFSAL*
p = 0.4817 >= 0.1000	removing	*CF20*	*CFTA*
p = 0.4571 >= 0.1000	removing	*GP22*	*⊿R&D*
p = 0.4428 >= 0.1000	removing	*GP30*	*⊿NISAL*
p = 0.4104 >= 0.1000	removing	*IU27*	*LNSAL*
p = 0.3864 >= 0.1000	removing	*IU20*	*RETETA*
p = 0.3823 >= 0.1000	removing	*GP28*	*△GROSSM*
p = 0.3799 >= 0.1000	removing	*IU30*	*△WCTA*
p = 0.3742 >= 0.1000	removing	*IU4*	*WCTA*
p = 0.3587 >= 0.1000	removing	*IU28*	*⊿TA*
p = 0.3355 >= 0.1000	removing	*IU32*	*⊿CURR*
p = 0.3135 >= 0.1000	removing	*IU17*	*FASAL*
p = 0.2947 >= 0.1000	removing	*CF3*	*ODEC*
p = 0.2922 >= 0.1000	removing	*IU34*	*⊿DEEC*
p = 0.2516 >= 0.1000	removing	*GP33*	*⊿OISAL*
p = 0.2005 >= 0.1000	removing	*GP32*	*⊿ROEOI*
p = 0.1925 >= 0.1000	removing	*IU18*	*DAYREC*
p = 0.1825 >= 0.1000	removing	*GP20*	*△LTDEBT*
p = 0.1735 >= 0.1000	removing	*IU8*	*LTDEC*
p = 0.1719 >= 0.1000	removing	*IU3*	*TANSAL*
p = 0.1458 >= 0.1000	removing	*GP1*	*⊿INVSTA*
p = 0.1443 >= 0.1000	removing	*IU26*	*DEPRATE*
p = 0.1219 >= 0.1000	removing	*GP37*	*⊿SALETA*

CHAPTER 4 THE PORTFOLIO OF FDI AND TAX AVOIDANCE

4.1 Overview

A firm's portfolio of FDI differs from other firms because of the difference in the firm's strategies, which is affected by all of the firm's interested parties (e.g. government, employees, owners, investors, etc.). Firm managers negotiate and decide which countries to invest and these countries present a portfolio of FDI. Some firm's strategies are dominated by the incentive to minimize taxes, which has been demonstrated in several studies (Horst, 1971; Coughlin, Terza, and Arromdee, 1991; Harris, 1993; Grubert and Mutti, 2000; Graham, 2003; Schwarz, 2009). Thus, some FDI portfolios may reflect high or low tax avoidance incentives. In this chapter, we will try to answer the question: what are the types of portfolio of FDI that may lead to a negative effect on tax avoidance practice? Based on the theory of investor protection and corporate social responsibility (CSR), we adopt two perspectives to evaluate the portfolio of FDI, which are the legal system and the degree of development.

Based on the theory of investor protection (La Porta et al., 1998), common law countries generally have a stronger legal protection for investors than civil law countries. Thus, we can assume that a firm with a high proportion of common law countries in its FDI portfolio is exposed to a relatively higher level of investor protection environment. The negative relationship between investor protection and earnings management has been verified by several studies (Fung, Su, and Gul, 2013; Leuz, Nanda, and Wysocki, 2003). Guenther (1994), and Beuselinck and Deloof (2014) mention that earnings management is a way for a firm to achieve the goal of tax avoidance. Accordingly, we expect that tax avoidance practice should be negatively associated with FDI portfolios with a high proportion of common law countries.

Based on the theory of CSR (Baughn, Bodie, and McIntosh, 2007), host country economics can reflect the level of CSR, and its development of institutional capacity can promote CSR practices. Thus, we can assume that a firm with a high proportion of developed countries in its FDI portfolio has greater potential to engage in CSR practices. Aiming to explain why the mixed empirical results in research on the relationship between CSR

practices and tax avoidance are mixed (Hoi, Wu, and Zhang, 2013; Davis et al., 2015)[23], Watson (2015) considers the effects of earnings performance. He summarizes that CSR is negatively associated with tax avoidance when earnings performance is low, while this relationship turn to positive when earnings performance is high. In addition, investment in developing countries is generally connected with higher earnings performance (Yang, Martins, and Driffield, 2013; Makino, Beamish, and Zhao, 2004). To sum up, we expect that tax avoidance practice should be negatively associated with FDI portfolio with a high proportion of developed countries.

Based on the theory of ownership (Fuest and Hemmelgarn, 2005), foreign firm ownership has a positive effect on tax avoidance practice. There is a limitation among prior studies about foreign firm ownership and tax avoidance (Fuest and Hemmelgarn, 2005; Salihu, Annuar, and Sheikh Obid, 2015). They ignore the potential effect from different types of FDI portfolio. Consistent with prior studies, we consider that foreigner ownership is positively related with tax avoidance as well. Then we further discuss whether this relationship is affected by different types of portfolios of FDI. According to the former expectations, we predict that the proportion of common law countries or developed countries that a firm has in its FDI portfolio will diminish the effect of foreign firm ownership on the firm's tax avoidance practice.

To empirically examine the corporate tax avoidance practice, we rely on two different measures of tax avoidance selected from the prior literature (Rego, 2003; Chen et al., 2010; Taylor and Richardson, 2012; Hope, Ma, and Thomas, 2013; McGuire, Wang, and Wilson, 2014; Kubick et al., 2015; Salihu, Annuar, and Sheikh Obid, 2015). First, we use the effective tax rate, which is the most used measure by prior studies, to capture the firm's accrual-basis tax burden as an indicator of tax avoidance. Second, we use the book-tax difference, which considers the firm size and the corporate statutory tax rate, to measure tax avoidance. We

[23] Hoi, Wu, and Zhang (2013) find that firms with excessive irresponsible CSR practices are more likely engage in tax avoiding, which along with the corporate culture perspective, while Davis et al. (2015) argue that CSR is positively related to tax avoidance practices.

expect that a greater the proportion of common law countries or developed countries in a firm's FDI portfolio is associated with a lower effective tax rate and a higher book-tax difference.

Toyo Keizai's Overseas Japanese Companies database provides an ideal opportunity to measure the portfolio of FDI. We can access the information on how many and in what countries each firm invests in, by each firm and by each year. Based on the WORLD FACTBOOK of the Central Intelligence Agency (CIA) and the data center of UNCTAD we define the legal system and the degree of development for each country, respectively. Thus, we can analyze each firm's FDI portfolio from the perspective of the legal system and the degree of development, respectively.

In this chapter, we carry out multivariate regression tests for four hypotheses on the relationship between the portfolio of FDI and tax avoidance practice from the perspective of the legal system and the degree of development. Using 8,546 firm-year observations from Japanese listed firms in the period from 2003-2014, we find that the greater the proportion of common law countries or developed countries that a firm has in its FDI portfolio, the lower its level of tax avoidance. We also find that the proportion of common law countries or developed countries in a firm's FDI portfolio reduces the effect of foreign firm ownership on the firm's tax avoidance practice.

We provide some sensitivity tests as a robustness check. First, we use propensity score analysis with nonparametric regression for the sample matching to control for potential sample selection bias. Second, we perform an analysis at the firm level using the regression models with consideration that the portfolio of FDI may stay stable over time. Third, we estimate the regression models using the Fama and MacBeth (1973) method for mitigating statistical concerns of regression errors. Fourth, we ignore the impact of the financial crisis during 2007-2008 on the results. Lastly, we add alternate control variables into the regression models. After all of these sensitivity tests the findings remain unchanged.

The remaining parts of this chapter are as follows: Section 4.2 discusses the literature review and hypothesis development. Section 4.3 describes the empirical methods about regression models and sample selection. Section 4.4 presents descriptive statistics and

correlations of the sample and the multivariate results. Section 4.5 discusses sensitivity tests and robustness checks. Finally, the Appendices display the sample description by country, and the definitions of the variables about propensity score matching test.

4.2 Literature review and hypothesis development

Prior studies have tested the relationship between tax incentives and location decisions of overseas investment. Most of these studies discuss that host countries' tax rates do affect a firm's location decision, and a lower tax rate is associated with more investment (Rohlin, Rosenthal, and Ross, 2014; Buettner and Ruf, 2007; Grubert and Mutti, 2000). However, few studies discuss what types of FDI portfolios, as a characteristic of a firm's strategy on FDI, could bring negative effects on tax avoidance practice. In this section, we have two perspectives about the portfolio of FDI and tax avoidance practice. Then we develop four hypotheses.

4.2.1 THE INVESTOR PROTECTION PERSPECTIVE ON PORTFOLIO OF FDI AND TAX AVOIDANCE

Investor protection has effects on the firm's behavior, which have been clarified by various studies (Shleifer and Wolfenzon, 2002; Bergman and Nicolaievsky, 2007; Cheng and Shiu, 2007; John et al., 2010). However, these prior studies do not discuss the portfolio of FDI as a potentially dimension of investor protection.

Normally, the legal system can be categorized into two general families, common law and civil law. Dainow (1966) adds some comparative comments that common law starts with a case-law basis that it is also influenced by legislative basis, while civil law hold the opposite position. Countries with different legal systems have different levels of investor protection, as La Porta et al. (1998) argue that common-law countries generally have stronger legal

protection for investors, while civil-law countries have weaker legal regimes[24]. Thus a firm with a high proportion of common-law countries in its FDI portfolio should be exposed to a relatively higher level of investor protection environment.

Fung, Su, and Gul (2013) collect a sample of Hong Kong and China to test the relationship between investor protection and earnings management. They find that H-share firms[25] are positively related to earnings management, which is proxy for discretionary accruals. Leuz, Nanda, and Wysocki (2003) examine the earnings management across 31 countries and find that outsider economies with strong investor protection significantly associate with lower levels of earnings management. Furthermore, Guenther (1994) mentions that the managers could take advantage from influencing tax rate by earnings management. Beuselinck and Deloof (2014) use a Belgian firm-year sample to test the relationship between tax incentives and earnings management and find that group firms have more incentive to reduce taxes through managing earnings compared to the stand-alone firms. As such, investor protection is linked with low level of earnings management, which may negatively influence tax avoidance practice.

Considering these prior studies, we expect that if investor protection drives firm's behavior, then the portfolio of FDI with a high proportion of common-law countries and tax avoidance practice is likely to be negatively related. Therefore, we propose the following hypothesis:

H1: The greater the proportion of common law countries that a firm has in its FDI portfolio, the less likely it is to engage in tax avoidance practice.

[24] More specifically, La Porta et al. (1998) find that German and Scandinavian-civil-law countries (e.g. Japan, Germany, Finland, etc.) have weaker legal regimes, and French-civil-law countries (e.g. France, Brazil, etc.) have weakest legal regimes.

[25] H-share firms are incorporated in mainland China but listed on the Hong Kong stock exchange, which considered has a lower level of investor protection than other Hong Kong shares.

4.2.2 THE CSR PERSPECTIVE ON PORTFOLIO OF FDI AND TAX AVOIDANCE

CSR practices have effects on the firm's performance, which is clarified by various studies. (McWilliams and Siegel, 2001; Windsor, 2009; Scherer and Palazzo, 2011; Kang, Germann, and Grewal, 2015; Saeidi et al., 2015) However, these prior studies ignore portfolio of FDI as a potentially dimension of CSR practices.

Countries with different degree of development have different level of CSR practices, as Wanderley et al. (2008) mention that developed countries implement practical actions that can stimulate CSR development, actions lacking in developing countries. Furthermore, Md Moazzem Hossain et al. (2016) find that corruption, lack of coordination, and lack of government initiatives keep firms away from the CSR practices in developing countries. What's more, Baughn, Bodie, and McIntosh (2007) argue that CSR is highly related with host country economic factors and a country's development of institutional capacity can promote CSR practices. Accordingly, a firm with a high proportion of developed countries in its FDI portfolio should have a comparatively higher possible to hinder CSR practices.

The results of research on CSR and tax avoidance are mixed. Hoi, Wu, and Zhang (2013) use a U.S. firm-year sample to test the relationship between tax avoidance and CSR practice from two perspectives (i.e. corporate culture, and risk-management) and find that a firm with excessive irresponsible CSR practices is more likely to engage in tax avoidance, which agrees with the corporate culture perspective. In addition, Lanis and Richardson (2012) use Australian firm-year sample to test the relationship between CSR and corporate tax aggressiveness, and find that there is a negative correlation between CSR practice and tax aggressiveness. However, Davis et al. (2015) argue that CSR is positively related to tax avoidance practice. Discussing these mixed findings, Watson (2015) considers the effects of earnings performance on the relation between CSR and tax avoidance, and finds high level of CSR can reduce the possibility of tax avoidance when a firm has low earnings performance, while CSR can increase the possibility of tax avoidance when the performance is high.

Furthermore, Yang, Martins, and Driffield (2013) find that investment in developing countries is associated with larger effects on performance, including earnings performance[26], than in the case of investment in developed countries. Makino, Beamish, and Zhao (2004) argue that there are several differences in the characteristics of Japanese FDI between developing and developed countries. They find that compared to the developing countries, developed countries provide stronger property rights protection. Importantly, they mention that Japanese FDI in developing countries tends to produce higher financial performance than in developed countries. Based on these findings, direct investment in developed countries may lead to lower earnings performance than in developing countries.

Considering these prior studies, we expect that if CSR practices drive firm's performance, then the portfolio of FDI with a high proportion of developed countries and tax avoidance practice is likely to be negatively related. Therefore, we suggest the following hypothesis:

H2: The greater the proportion of developed countries that a firm has in its FDI portfolio, the less likely it is to engage in tax avoidance practice.

4.2.3 THE PORTFOLIO OF FDI EFFECT ON FOREIGN FIRM OWNERSHIP AND TAX AVOIDANCE

In the tax avoidance research, ownership structure is also an important part (Hanlon and Heitzman, 2010). Ownership patterns can have an important effect on tax avoidance, which is demonstrated by several studies (Fuest and Hemmelgarn, 2005; Chen et al., 2010; Khurana and Moser, 2012; Badertscher, Katz, and Rego, 2013; Salihu, Annuar, and Sheikh Obid, 2015). In this chapter, we focus on the foreign firm ownership because foreign firm ownership is highly related to FDI practice (Asiedu and Esfahani, 2001; Yudaeva et al., 2003).

[26] Return on sales, after-tax profits divided by total sales, used by Yang, Martins, and Driffield (2013).

Salihu, Annuar, and Sheikh Obid (2015) choose large Malaysian firms as a research sample and find that high level of foreign investors' interests[27] is positively related to tax avoidance. Fuest and Hemmelgarn (2005) discuss the impact of foreign firm ownership and find that foreign firm ownership negatively related to corporate tax rates. However, they ignore the potential effect from different types of FDI portfolio. Consistent with this research, we consider that foreign firm ownership is positively related with tax avoidance as well. Then we further discuss whether this relationship is affected by the different types of portfolio of FDI.

Based on H1 and H2, we estimate that the proportion of common law or developed countries that a firm has in its FDI portfolio is negatively linked with a firm's tax avoidance practice, which may reduce the effect of foreign firm ownership on the firm's tax avoidance practice. Given the above rationale, we propose the following two hypotheses:

H3a: The proportion of common law countries in a firm's FDI portfolio reduces the effect of foreign firm ownership on the firm's tax avoidance practice.

H3b: The proportion of developed countries in a firm's FDI portfolio reduces the effect of foreign firm ownership on the firm's tax avoidance practice.

4.3 Methods

4.3.1 REGRESSION MODELS

Following prior studies, we apply the following regression model (1) to test the H1 and H2, and use model (2) to test the H3a and H3b:

[27] Salihu, Annuar, and Sheikh Obid (2015) apply three measures to represent foreign investors' interests: the proportion of shares owned by foreign investors to the firm's total shareholding; a dummy variable in which 1 is assigned to a firm with up to 5% foreign firm ownership and 0 otherwise; the proportion of foreign directors on the board.

$$TAXAVOID_{i,t} = \alpha_0 + \alpha_1 HIGH\_COMMON_{i,t} / HIGH\_DEVELOPED_{i,t} + \alpha_2 CASH_{i,t} + \alpha_3 INTANG_{i,t} + \alpha_4 LEV_{i,t} + \alpha_5 RD_{i,t} + \alpha_6 EQLNE_{i,t} + \alpha_7 NOL_{i,t} + \alpha_8 LOSSINT_{i,t} + \alpha_9 CFO_{i,t} + \alpha_{10} \ln MV_{i,t} + \alpha_{11} DISC_{i,t} + \alpha_{12} THAV_{i,t} + \alpha_{13} EM1_{i,t} + \alpha_{14} EM2_{i,t} + \alpha_{15} EM3_{i,t} + Id + Yd + \varepsilon_{i,t} \quad (1)$$

$$TAXAVOID_{i,t} = \alpha_0 + \alpha_1 COMMON \times FOREIGN_{i,t} / DEVELOPED \times FOREIGN_{i,t} + \alpha_2 FOREIGN_{i,t} + \alpha_3 CASH_{i,t} + \alpha_4 INTANG_{i,t} + \alpha_5 LEV_{i,t} + \alpha_6 RD_{i,t} + \alpha_7 EQLNE_{i,t} + \alpha_8 NOL_{i,t} + \alpha_9 LOSSINT_{i,t} + \alpha_{10} CFO_{i,t} + \alpha_{11} \ln MV_{i,t} + \alpha_{12} DISC_{i,t} + \alpha_{13} THAV_{i,t} + \alpha_{14} EM1_{i,t} + \alpha_{15} EM2_{i,t} + \alpha_{16} EM3_{i,t} + Id + Yd + \varepsilon_{i,t} \quad (2)$$

Where all variables are summarized in Table 4.1. The dependent variable (*TAXAVOID*) represents *ETR* and *BTAX*. Following prior studies (Rego, 2003; Chen et al., 2010; Huseynov and Klamm, 2012; Hope, Ma, and Thomas, 2013; McGuire, Wang, and Wilson, 2014; Kubick et al., 2015; Salihu, Annuar, and Sheikh Obid, 2015), the first measure of tax avoidance is ETR, effective tax rate, defined as current tax expense divided by pretax accounting income, which captures the firm's accrual-basis tax burden during the fiscal year. Prior studies suggest that a lower value of *ETR* reflects an increased level of tax avoidance. The second measure of tax avoidance is *BTAX*. *BTAX* is measured as pre-tax accounting income less taxable income, scaled by lagged total assets. Taxable income is computed as tax expense divided by the corporate statutory tax rate[28] (Chen et al., 2010; Taylor and Richardson, 2012). Consistent with prior studies, higher value of *BTAX* reflects an increased level of tax avoidance.

To examine the H1, we analyze the coefficient on *HIGH_COMMON*. We define *HIGH_COMMON* as a dummy variable that equals 1 if *COMMON* > 75% for a firm, and 0 otherwise. Here, the variable, *COMMON*, is the proportion of common law countries in a firm's FDI portfolio. To estimate the value of *COMMON*, we get the information about Japanese firms' FDI by each country from the Toyo Keizai's Overseas Japanese Companies database. Then we define the legal system for each country based on the WORLD FACTBOOK of the CIA, which is listed in Appendix 4.A. Thus, we can analyze each firm's FDI portfolio from the perspective of the legal system. We expect a positive association

[28] Based on the information of the Ministry of Finance Japan, the corporate statutory tax rate was 30% during fiscal year 2003 to 2011, and 25.5% during fiscal year 2012 to 2014.

between *HIGH_COMMON* and *ETR*, and a negative association between *HIGH_COMMON* and *BTAX*.

To examine the H2, we analyze the coefficient on *HIGH_DEVELOPED*. We define *HIGH_DEVELOPED* as a dummy variable that equals 1 if *DEVELOPED* > 75% for a firm, and 0 otherwise. Here, the variable, *DEVELOPED*, is the proportion of developed countries in a firm's FDI portfolio. For estimating the value of *DEVELOPED*, similarly, we get the information about Japanese firms' FDI by each country from the Toyo Keizai's Overseas Japanese Companies database. Then we define the legal system and the degree of development for each country based on the data center of UNCTAD, which is listed in Appendix 4.A. Thus, we can analyze each firm's FDI portfolio from the perspective of the degree of development. We expect a positive association between *HIGH_DEVELOPED* and *ETR*, and a negative association between *HIGH_DEVELOPED* and *BTAX*.

To examine the H3a and H3b, we analyze the coefficient on *COMMON×FOREIGN* and *FOREIGN*, and *DEVELOPED×FOREIGN* and *FOREIGN*, respectively. We define *COMMON×FOREIGN* as an interaction of a dummy variable for high foreign investors' interests of *FOREIGN* and the value of *COMMON* (mentioned before), and *DEVELOPED×FOREIGN* is defined as an interaction of a dummy variable of *FOREIGN* and the value of *DEVELOPED* (mentioned before). We define *FOREIGN* as a dummy variable that equals 1 if the proportion of a firm's foreign firm ownership is highest, and 0 otherwise. Consistent with Salihu, Annuar, and Sheikh Obid (2015)'s research, we expect a negative association between *FOREIGN* and *ETR*, and a positive association between *FOREIGN* and *BTAX*. Also, for the research, we expect a positive association between *COMMON×FOREIGN* (*DEVELOPED×FOREIGN*) and *ETR*, and a negative association between *COMMON×FOREIGN* (*DEVELOPED×FOREIGN*) and *BTAX*.

We also control for other determinants of a firm's tax situations by including variables that are common in the prior studies that capture profitability (*NOL*, *LOSSINT*, and *EQLNE*), and opportunities (*lnMV*, *LEV*, *RD*, and *INTANG*) to engage in tax avoidance (Rego, 2003; Frank, Lynch, and Rego, 2009; Chen et al., 2010;Taylor and Richardson, 2012; Rego and Wilson, 2012; Hope, Ma, and Thomas, 2013; Hoi, Wu, and Zhang, 2013; McGuire, Wang,

and Wilson, 2014; Kubick et al., 2015; Armstrong et al., 2015; Salihu, Annuar, and Sheikh Obid, 2015). Meanwhile, we include variables (*CASH* and *CFO*) to control for liquidity that could potentially affect tax avoidance measure (Hoi, Wu, and Zhang, 2013; Armstrong et al., 2015). We also control for the geographic earnings disclosure (*DISC*) because Hope, Ma, and Thomas (2013) mention that a firm opting to discontinue disclosure of geographic earrings in their financial reports has lower worldwide effective tax rates. Furthermore, we consider the tax haven utilization (*THAV*)[29] because several studies argue that tax haven utilization is significantly associated with tax avoidance (Taylor and Richardson, 2012; Dharmapala, 2008; Dyreng and Lindsey, 2009). In addition, we control for the incentives to manage earnings (*EM1*, *EM2*, and *EM3*) as Frank, Lynch, and Rego (2009) use in their research. Finally, we include industry dummies and year dummies because prior studies consider that tax avoidance varies by industry and by year.

[29] THAV refers to the definition of tax haven (OECD) in (Dharmapala, 2008, p.676).

Table 4.1 Definitions and measurements of the variables

Variables	Definitions
Dependent variables	
ETR	Current tax expense / pretax accounting income;
BTAX	Pre-tax accounting income less taxable income (where taxable income is computed as income tax expense divided by the statutory corporate tax rate) using the method developed by Manzon and Plesko (2002) divided by lagged total assets;
Test variables	
COMMON	Proportion of common law countries that a firm's foreign direct investment portfolio with;
DEVELOPED	Proportion of developed countries that a firm's foreign direct investment portfolio with;
HIGH_COMMON	A dummy variable that equals 1 if *COMMON* > 75% for a firm, and 0 otherwise;
HIGH_DEVELOPED	A dummy variable that equals 1 if *DEVELOPED* > 75% for a firm, and 1 otherwise;
COMMON×FOREIGN	Value *COMMON* times value *FOREIGN;*
DEVELOPED×FOREIGN	Value *DEVELOPED* times value *FOREIGN;*
FOREIGN	Measure of foreign investors' interests. A dummy variable that equals 1 if the proportion of a firm's foreign ownership is highest, and 0 otherwise;
Control variables	
CASH	Cash and marketable securities / lagged total assets;
INTANG	Intangible asset / lagged total assets;
LEV	Total debt / lagged total assets;
RD	Research and development expense / lagged total assets;
EQLNE	Equity income / lagged total assets;
NOL	A dummy variable that equals 1 if loss carry forward is negative at the beginning of year, and 0 otherwise;
LOSSINT	Loss intensity over the previous four-year period defined as the number of years a firm has negative pre-tax income from year t-4 to year t-1 scaled to range between 0 and 1;
CFO	Cash flow from operations / lagged total assets;
LnMV	Natural logarithm of the market value;
DISC	A dummy variable that equals 1 if a firm disclose geographic overseas sales, and 0 otherwise;
THAV	A dummy variable that equals 1 if a firm has at least one subsidiary firm incorporated in a tax haven, and 0 otherwise;
EM1	A dummy variable that equal 1 if net income / lagged market value, is greater than 0 and less than or equal to 0.01, and 0 otherwise;
EM2	A dummy variable that equal 1 if the change in net income from year t-1 to year t / the market value at year t-2, is greater than 0 and less than or equal to 0.01, and 0 otherwise;
EM3	A dummy variable that equal 1 if a firm's net income less the managers' last forecast is greater than 0 and less than or equal to 0.01, and 0 otherwise;
Id	Industry dummy variable that equals 1 if the firm is represented in the specific TSE New Industry Code category, and 0 otherwise; and
Yd	Year dummy variable that equals 1 if the year falls within the specific year category, and 0 otherwise.

4.3.2 SAMPLE SELECTION

Table 4.2 Sample selection and description

Listed companies for fiscal years 2003 to 2014 (ending in March)	24,533 *
(less) Financial companies	-1,543
(less) Stock data unavailable	-843 **
(less) Segment data unavailable	-4,071
(less) Overseas investment data unavailable	-3,554
(less) Financial data and forecast data unavailable	-3,992
(less) *ETR* <0 or *ETR* >1	-1,984 ***
Full available sample	8,546

* Downloaded data from NEEDS Database using the criteria: accounting year-end at the end of March.

** Stock data contain the information about stock price and stock share by each kind of stockholder.

*** According to prior research (Hoi, Wu, and Zhang, 2013) we truncate *ETR* to the range (0,1).

Table 4.2 presents information on the sample's selection process. For estimating the regression model, we use firm-year data from fiscal year 2003 to 2014. Information about stock, managers' forecast net income, segment data and financial statements is obtained from the NEEDS Financial Quest database. Information about Japanese firms' overseas investment is obtained from the Toyo Keizai's Overseas Japanese Companies database. After restricting the sample to firms with the fiscal year ended as of March 31, and excluding financial companies and missing data, the full available sample consists of 8,546 firm-years.

4.4 Results

4.4.1 DESCRIPTIVE STATISTICS AND CORRELATIONS

Table 4.3 Sample selection and description

Variable	n	Mean	Std. Dev.	p25	Median	p75
Dependent variables						
ETR	8,546	0.4007	0.0763	0.3532	0.4039	0.4492
BTAX	8,546	0.0502	0.0260	0.0301	0.0464	0.0689
Test variables						
COMMON	8,546	0.2824	0.2313	0.1667	0.2500	0.3750
DEVELOPED	8,546	0.3086	0.2614	0.0000	0.2857	0.5000
HIGH_COMMON	8,546	0.0281	0.1652	0.0000	0.0000	0.0000
HIGH_DEVELOPED	8,546	0.0346	0.1829	0.0000	0.0000	0.0000
COMMON×FOREIGN	8,546	0.0073	0.0527	0.0000	0.0000	0.0000
DEVELOPED×FOREIGN	8,546	0.0093	0.0681	0.0000	0.0000	0.0000
FOREIGN	8,546	0.0405	0.1971	0.0000	0.0000	0.0000
Control variables						
CASH	8,546	0.2768	0.1209	0.1943	0.2637	0.3459
INTANG	8,546	0.0201	0.0384	0.0041	0.0091	0.0198
LEV	8,546	0.5381	0.1906	0.3986	0.5406	0.6731
RD	8,546	0.0154	0.0206	0.0004	0.0075	0.0228
EQLNE	8,546	0.0011	0.0030	0.0000	0.0000	0.0009
NOL	8,546	0.0776	0.2675	0.0000	0.0000	0.0000
LOSSINT	8,546	0.1461	0.2210	0.0000	0.0000	0.2500
CFO	8,546	0.0622	0.0468	0.0379	0.0624	0.0881
LnMV	8,546	4.5436	0.6915	4.0428	4.4684	5.0043
DISC	8,546	0.4628	0.4986	0.0000	0.0000	1.0000
THAV	8,546	0.0215	0.2207	0.0000	0.0000	0.0000
EM1	8,546	0.0078	0.0882	0.0000	0.0000	0.0000
EM2	8,546	0.1512	0.3582	0.0000	0.0000	0.0000
EM3	8,546	0.4347	0.4957	0.0000	0.0000	1.0000

Table 4.3 presents the descriptive statistics. For the dependent variables, the mean value of *ETR* and *BTAX* is 0.4007 and 0.0502, respectively. The sample mean for *ETR* are higher than those in the extant studies[30]. This is reasonable because this phenomenon consistent with Collins and Shackelford (1995) and Haghirian (2016)'s research that compared to other countries, Japan has a relatively higher effective tax rate. For the test variables, the mean value of *HIGH_COMMON* is 0.0281, suggesting that there are nearly 3% of the sample firms have a greater proportion of common law countries in its FDI portfolio. The mean value of *HIGH_DEVELOPED* is 0.0346, suggesting that there are only about 3.5% of the sample firms have a greater proportion of developed countries in its FDI

[30] The mean value of ETR in Kubick et al. (2015), McGuire, Wang, and Wilson (2014), and Hope, Ma, and Thomas (2013) is , 0.318, 0.357, and 0.32, respectively.

portfolio. The mean value of *FOREIGN* is 0.0405, suggesting that there are only about 4% of the sample firms with a highest foreign firm ownership, which represents a high foreign investors' interests. Thus, the mean value of *COMMON*×*FOREIGN* and *DEVELOPED*×*FOREIGN* is 0.0073 and 0.0093, respectively.

Table 4.4 FDI by year and by industry

Panel A: Mean values and proportion distribution

	Total	Non-FDI	FDI	*COMMON*	Level of *COMMON* [a]					*HIGN_COMMON*	*DEVELOPED*	Level of *DEVELOPED*					*HIGN_DEVELOPED*
Year	n	n	n	Mean	0	1	2	3	4	Mean	Mean	0	1	2	3	4	Mean
2003	671	251	420	0.3239	86	100	184	15	35	0.0522	0.3614	97	73	158	50	42	0.0626
2004	730	265	465	0.3083	97	128	187	19	34	0.0466	0.3425	112	89	169	55	40	0.0548
2005	670	236	434	0.3018	92	121	171	21	29	0.0433	0.3300	104	88	158	53	31	0.0463
2006	735	266	469	0.2810	105	141	182	19	22	0.0299	0.3191	118	103	166	54	28	0.0381
2007	702	254	448	0.2870	97	128	184	17	22	0.0313	0.3186	112	91	172	49	24	0.0342
2008	636	280	356	0.2779	78	124	123	13	18	0.0283	0.3118	93	79	128	35	21	0.0330
2009	763	313	450	0.2708	104	140	173	13	20	0.0262	0.3048	123	94	165	43	25	0.0328
2010	691	261	430	0.2724	93	134	172	15	16	0.0232	0.2916	114	100	162	34	20	0.0289
2011	645	232	413	0.2733	80	137	172	11	13	0.0202	0.3004	92	105	164	35	17	0.0264
2012	748	289	459	0.2623	105	144	178	20	12	0.0160	0.2790	125	109	171	35	19	0.0254
2013	765	303	462	0.2709	90	150	190	21	11	0.0144	0.2754	120	115	175	37	15	0.0196
2014	790	317	473	0.2614	94	162	190	19	8	0.0101	0.2743	113	125	191	30	14	0.0177

Panel B: Mean Value of common law and developed countries investment activities by TSE New Industry Code

TSE Code	Industry	Total n	Non-FDI n	FDI n	*COMMON* Mean	*HIGN_COMMON* Mean	*DEVELOPED* Mean	*HIGN_DEVELOPED* Mean
0050	Fishery, Agriculture & Forestry	17	0	17	0.3494	0.1176	0.5223	0.1176
1050	Mining	21	0	21	0.3122	0.0000	0.3829	0.1905
2050	Construction	560	287	273	0.1689	0.0089	0.1134	0.0089
3050	Foods	529	272	257	0.2953	0.0113	0.3407	0.0113
3100	Textile & Apparels	175	47	128	0.1483	0.0000	0.1820	0.0114
3150	Pulp & Paper	100	22	78	0.2496	0.0200	0.3012	0.0400
3200	Chemicals	998	200	798	0.2497	0.0220	0.2930	0.0230
3250	Pharmaceutical	136	86	50	0.4023	0.0147	0.5767	0.0882
3300	Oil & Coal Products	33	4	29	0.4296	0.1515	0.2831	0.1515
3350	Rubber Products	98	18	80	0.2599	0.0000	0.3112	0.0000
3400	Glass & Ceramics Products	225	79	146	0.2807	0.0044	0.3471	0.0044
3450	Iron & Steel	239	100	139	0.1638	0.0335	0.1290	0.0251
3500	Nonferrous Metals	133	25	108	0.2712	0.0150	0.3207	0.0526
3550	Metal Products	250	81	169	0.2612	0.0240	0.2461	0.0240
3600	Machinery	723	116	607	0.2925	0.0180	0.3689	0.0318
3650	Electric Appliances	726	115	611	0.3026	0.0165	0.3424	0.0413
3700	Transport Equipment	464	45	419	0.3072	0.0302	0.3713	0.0366
3750	Precision Instruments	170	22	148	0.2999	0.0235	0.4108	0.0588
3800	Other Products	218	92	126	0.2160	0.0000	0.2311	0.0092
4050	Electric Power & Gas	111	63	48	0.4448	0.1351	0.6201	0.1532
5050	Land Transportation	411	309	102	0.2856	0.0097	0.2264	0.0097
5100	Marine Transportation	63	20	43	0.4160	0.0952	0.3543	0.0635
5150	Air Transportation	13	0	13	0.4968	0.0000	0.5929	0.0000
5200	Warehousing and Harbor transportation	147	37	110	0.2446	0.0612	0.1681	0.0000
5250	Information & Communication	348	190	158	0.3976	0.0690	0.4369	0.1207
6050	Wholesale Trade	820	414	406	0.2853	0.0341	0.2154	0.0293
6100	Retail Trade	342	277	65	0.2262	0.0146	0.1872	0.0146
7050	Banks	0	0	0	0.0000	0.0000	0.0000	0.0000
7100	Securities & Commodity Futures	0	0	0	0.0000	0.0000	0.0000	0.0000
7150	Insurance	0	0	0	0.0000	0.0000	0.0000	0.0000
7200	Other Financing Business	0	0	0	0.0000	0.0000	0.0000	0.0000
8050	Real Estate	170	118	52	0.8114	0.1941	0.7060	0.1353
9050	Services	306	228	78	0.3584	0.0392	0.3607	0.0392
9999	Nonclassifiable	0	0	0	0.0000	0.0000	0.0000	0.0000

a 0=0%; 1=(0%,25%]; 2=(25%,50%]; 3=(50%,75%]; 4=(75%,100%]

Table 4.4, Panel A presents mean values of *COMMON*, *HIGH_COMMON*, *DEVELOPED*, and *HIGH_DEVELOPED* by years as well as the proportion distribution of common law countries investment and developed countries investment by year. The proportion of firms with none or FDI portfolio less than 25% of common law countries in a given year ranges from 28% in 2003 to 34% in 2011[31]. In contrast, we find that relatively few firms have FDI portfolio with a high proportion (more than 75%) of common law countries in a given year, with the proportion of such firms ranging from 5% in 2003 to 1% in 2014 and decreasing over the years[32]. On the other hand, the proportion of firms with none or FDI portfolio less than 25% of developed countries in a given year ranges from 25% in 2003 to 31% in 2012[33]. In contrast, similarly, we find that relatively few firms have FDI portfolio with a high proportion (more than 75%) of developed countries in a given year, with the proportion of such firms ranging from 6% in 2003 to 2% in 2014 and decreasing over the years[34].

Table 4.4, Panel B presents the mean value of common law and developed countries investment activities by the TSE New Industry Code. Real Estate (8050) is the industry with the highest proportion of common law countries investment, followed by Oil & Coal Products (3300), and Electric Power & Gas (4050). On the other hand, Mining (1050) is the industry with the highest proportion of developed countries investment, followed by Electric Power & Gas (4050), and Oil & Coal Products (3300).

[31] 0.277=(86+100)/671; 0.336=(80+137)/645
[32] 0.052=35/671; 0.010=8/790
[33] 0.253=(97+73)/671; 0.313=(125+109)/748
[34] 0.063=42/671; 0.018=14/790

Table 4.5 Correlations among the variables for model (1) and model (2)

		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)
ETR	*(A)*	1																				
BTAX	*(B)*	-	1																			
HIGH_COMMON	*(C)*	0.046	-0.039	1																		
HIGH_DEVELOPED	*(D)*	0.035	-0.014	0.677	1																	
COMMON×FOREIGN	*(E)*	-0.011	0.051	0.044	0.065	1																
DEVELOPED×FOREIGN	*(F)*	-0.018	0.051	0.029	0.059	0.912	1															
FOREIGN	*(G)*	-0.046	0.091	-0.017	-0.010	0.674	0.665	1														
CASH	*(H)*	-0.100	0.300	-0.046	0.034	0.085	0.077	0.094	1													
INTANG	*(I)*	0.038	0.113	-0.016	0.036	0.036	0.053	0.033	0.050	1												
LEV	*(J)*	0.014	-0.237	0.057	0.005	-0.051	-0.044	-0.075	-0.386	0.068	1											
RD	*(K)*	-0.161	0.178	-0.042	-0.001	0.067	0.102	0.065	0.117	0.122	-0.192	1										
EQLNE	*(L)*	-0.211	0.080	-0.007	-0.014	0.035	0.028	0.077	0.168	-0.016	-0.006	0.038	1									
NOL	*(M)*	-0.035	-0.204	-0.010	-0.007	-0.018	-0.010	-0.022	-0.029	-0.007	0.087	0.017	-0.011	1								
LOSSINT	*(N)*	-0.082	-0.167	-0.016	-0.004	-0.033	-0.033	-0.033	-0.066	-0.039	0.200	0.001	-0.021	0.172	1							
CFO	*(O)*	-0.099	0.311	-0.014	0.001	0.027	0.033	0.035	0.427	0.141	-0.135	0.156	0.031	-0.026	-0.082	1						
LnMV	*(P)*	-0.112	0.130	0.055	0.063	0.097	0.112	0.089	0.045	0.188	0.003	0.198	0.129	-0.110	-0.190	0.120	1					
DISC	*(Q)*	-0.227	0.143	-0.044	-0.009	0.100	0.111	0.058	0.127	0.030	-0.073	0.413	0.120	0.034	0.035	0.118	0.226	1				
THAV	*(R)*	-0.021	0.003	-0.017	-0.019	0.013	0.030	0.023	0.003	0.054	0.090	-0.004	0.081	-0.005	-0.008	0.004	0.122	0.086	1			
EM1	*(S)*	0.067	-0.134	-0.007	-0.017	-0.012	-0.012	0.009	-0.028	-0.004	0.002	0.006	-0.027	0.069	0.039	-0.064	-0.004	-0.008	-0.009	1		
EM2	*(T)*	0.019	0.041	-0.007	-0.001	0.019	0.020	0.028	0.031	0.038	-0.054	-0.002	-0.008	-0.120	-0.083	0.014	0.139	-0.038	-0.007	-0.001	1	
EM3	*(U)*	0.030	-0.035	0.018	0.028	0.001	-0.004	0.009	-0.013	0.025	-0.050	0.001	-0.039	-0.003	-0.051	-0.016	0.119	-0.051	-0.015	0.018	0.067	1

Correlations are based on 8,546 firm-year observiations.

Pearson correlations in the lower diagonal.

Table 4.5 presents the correlations among the variables for model (1) and model (2). We find that *HIGH_COMMON* and *HIGH_DEVELOPED* are positively related to *ETR*, but negatively related to *BTAX*, which is consistent with the H1 and H2. Then we find that *COMMON×FOREIGN* and *DEVELOPED×FOREIGN* are negatively related to *ETR*, but positively related to *BTAX*, which oppose the H3a and H3b. However, these simple correlations do not control for other determinants of tax avoidance. These correlations suggest multivariate regression for controlling the potential factors that lead to more reliable results.

4.4.2 MULTIVARIATE RESULTS

Table 4.6 The portfolio of FDI and tax avoidance analysis

Panel A: Dependent variable as *ETR*

		ETR							
	Expected	Model 1a (H1)		Model 1b (H2)		Model 2a (H3a)		Model 2b (H3b)	
Dependent variable	Sign	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Test variables									
HIGH_COMMON	+	0.0160	3.43 ***						
HIGH_DEVELOPED	+			0.0127	3.01 ***				
COMMON×FOREIGN	+					0.0726	3.72 ***		
DEVELOPED×FOREIGN	+							0.0472	0.0150 ***
FOREIGN	-					-0.0214	-4.10 ***	-0.0191	0.0052 ***
Control variables									
CASH		-0.0001	-0.02	-0.0018	-0.22	-0.0005	-0.07	-0.0002	-0.02
INTANG		0.1241	5.69 ***	0.1211	5.55 ***	0.1216	5.58 ***	0.1205	5.53 ***
LEV		-0.0046	-0.96	-0.0043	-0.90	-0.0048	-1.01	-0.0049	-1.02
RD		-0.1780	-3.18 ***	-0.1755	-3.13 ***	-0.1787	-3.19 ***	-0.1860	-3.32 ***
EQLNE		-4.1344	-15.55 ***	-4.1201	-15.49 ***	-4.0646	-15.26 ***	-4.0611	-15.23 ***
NOL		-0.0113	-3.79 ***	-0.0113	-3.78 ***	-0.0113	-3.79 ***	-0.0114	-3.82 ***
LOSSINT		-0.0337	-8.86 ***	-0.0339	-8.91 ***	-0.0337	-8.87 ***	-0.0337	-8.87 ***
CFO		-0.1140	-5.84 ***	-0.1120	-5.73 ***	-0.1123	-5.75 ***	-0.1127	-5.77 ***
LnMV		-0.0083	-6.37 ***	-0.0082	-6.33 ***	-0.0080	-6.16 ***	-0.0080	-6.17 ***
DISC		-0.0165	-8.20 ***	-0.0166	-8.26 ***	-0.0170	-8.44 ***	-0.0168	-8.35 ***
THAV		0.0053	1.48	0.0052	1.46	0.0052	1.47	0.0049	1.38
EM1		0.0443	5.13 ***	0.0445	5.16 ***	0.0451	5.23 ***	0.0450	5.21 ***
EM2		0.0012	0.58	0.0012	0.55	0.0012	0.57	0.0012	0.55
EM3		0.0010	0.63	0.0010	0.62	0.0011	0.71	0.0012	0.74
Id & *Yd*		Included		Included		Included		Included	
Intercept		0.5253	24.94 ***	0.5253	24.93 ***	0.5246	-1.05 ***	0.524647	24.9 ***
Adj R-squared		0.1779		0.1777		0.1786		0.1782	
No. Obs.		8,546		8,546		8,546		8,546	

Panel B: Dependent variable as *BTAX*

		BTAX							
	Expected	Model 1a (H1)		Model 1b (H2)		Model 2a (H3a)		Model 2b (H3b)	
Dependent variable	Sign	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Test variables									
HIGH_COMMON	-	-0.0039	-2.64 ***						
HIGH_DEVELOPED	-			-0.0037	-2.8 ***				
COMMON×FOREIGN	-					-0.0218	-3.53 ***		
DEVELOPED×FOREIGN	-							-0.0178	0.00476 ***
FOREIGN	+					0.0082	4.95 ***	0.0083	0.001639 ***
Control variables									
CASH		0.0209	8.22 ***	0.0214	8.4 ***	0.0208	8.17 ***	0.0207	8.14 ***
INTANG		0.0337	4.87 ***	0.0345	4.98 ***	0.0341	4.94 ***	0.0346	5.01 ***
LEV		-0.0164	-10.88 ***	-0.0165	-10.92 ***	-0.0162	-10.75 ***	-0.0162	-10.73 ***
RD		0.0706	3.98 ***	0.0697	3.93 ***	0.0699	3.94 ***	0.0727	4.1 ***
EQLNE		0.3318	3.94 ***	0.3275	3.88 ***	0.3038	3.6 ***	0.2995	3.54 ***
NOL		-0.0133	-14.11 ***	-0.0133	-14.12 ***	-0.0133	-14.12 ***	-0.0133	-14.09 ***
LOSSINT		-0.0138	-11.44 ***	-0.0138	-11.41 ***	-0.0138	-11.45 ***	-0.0138	-11.47 ***
CFO		0.1243	20.07 ***	0.1237	19.97 ***	0.1239	20.02 ***	0.1239	20.03 ***
LnMV		0.0013	3.06 ***	0.0013	3.06 ***	0.0012	2.82 ***	0.0012	2.86 ***
DISC		0.0019	2.99 ***	0.0019	3.04 ***	0.0020	3.21 ***	0.0020	3.15 ***
THAV		-0.0012	-1.1	-0.0012	-1.1	-0.0013	-1.11	-0.0012	-1.03
EM1		-0.0285	-10.42 ***	-0.0286	-10.45 ***	-0.0288	-10.54 ***	-0.0288	-10.55 ***
EM2		-0.0008	-1.14	-0.0008	-1.13	-0.0008	-1.16	-0.0008	-1.15
EM3		-0.0016	-3.14 ***	-0.0016	-3.12 ***	-0.0016	-3.22 ***	-0.0017	-3.25 ***
Id & *Yd*		Included		Included		Included		Included	
Intercept		0.0303	4.53 ***	0.0303	4.53 ***	0.0306	2.43 ***	0.0305	4.57 ***
Adj R-squared		0.2841		0.2842		0.2855		0.2857	
No. Obs.		8,546		8,546		8,546		8,546	

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

Table 4.6, Panel A presents the multivariate results from model (1) and (2) with the dependent variable as *ETR*, while Panel B presents the multivariate results with the dependent variable as *BTAX*. The coefficient on *HIGH_COMMON* is positive and significant in the first columns of Panel A, and negative and significant in the first columns of Panel B, respectively. These results support H1, which predicts that the greater the proportion of common law countries that a firm has in its FDI portfolio, the less likely it is to engage in tax avoidance practice.

The coefficient on *HIGH_DEVELOPED* is positive and significant in the second columns of Panel A, and negative and significant in the second columns of Panel B, respectively. These results support H2, which predicts that the greater the proportion of developed countries that a firm has in its FDI portfolio, the less likely it is to engage in tax avoidance practice.

The coefficient on *COMMON×FOREIGN* (*FOREIGN*) is positive (negative) and significant in the third columns of Panel A, and negative (positive) and significant in the third columns of Panel B, respectively. These results support H3a, which predicts that tax avoidance practice resulting from foreign firm ownership is minimized for a firm's FDI portfolio with a greater proportion of common law countries.

The coefficient on *DEVELOPED×FOREIGN* (*FOREIGN*) is positive (negative) and significant in the fourth columns, and negative (positive) and significant in the fourth columns of Panel B, respectively. These results support H3b, which predicts that tax avoidance practice resulting from foreign firm ownership is minimized for a firm's FDI portfolio with a greater proportion of developed countries.

4.5 Sensitivity Tests

4.5.1 PROPENSITY SCORE MATCHING (PSM) TEST

We use propensity score analysis with nonparametric regression (i.e. kernel-based matching). This method uses propensity scores derived from multiple matches to calculate a

weighted mean that is used as a counterfactual. As such, kernel-based matching is a robust estimator (Guo and Fraser, 2009).

The PSM model matches observations based on the probability of undergoing treatment, which in this case is the probability of a firm's FDI portfolio with a high proportion of common law countries (*HIGH_COMMON*=1), the probability of a firm's FDI portfolio with a high proportion of developed countries (*HI1GH_DEVELOPED*=1), and the probability of a firm with highest foreign firm ownership (*FOREIGN*=1), respectively.

We use three logistic models to estimate the probability of these undergoing treatments *HIGH_COMMON*, *HIGH_DEVELOPED*, and *FOREIGN*, respectively. Then generate three sample groups in which both observations with treatments and observations without treatments are matched to have similar characteristics. We estimate the propensity score using the following logistic regression models:

$$HIGH\_COMMON_{i,t} = \alpha_0 + \alpha_1 CAP_{i,t} + \alpha_2 ADV_{i,t} + \alpha_3 RD2_{i,t} + \alpha_4 INTEREST_{i,t} + \alpha_5 INTANG_{i,t} + \alpha_6 QUICTR_{i,t} + \alpha_7 ROA2_{i,t} + \alpha_8 \ln ASSET_{i,t} + Id + Yd + \varepsilon_{i,t} \quad (3)$$

$$HIGH\_DEVELOPED_{i,t} = \alpha_0 + \alpha_1 CAP_{i,t} + \alpha_2 ADV_{i,t} + \alpha_3 RD2_{i,t} + \alpha_4 INTEREST_{i,t} + \alpha_5 INTANG_{i,t} + \alpha_6 QUICTR_{i,t} + \alpha_7 ROA2_{i,t} + \alpha_8 \ln ASSET_{i,t} + Id + Yd + \varepsilon_{i,t} \quad (4)$$

$$FOREIGN_{i,t} = \alpha_0 + \alpha_1 CAP_{i,t} + \alpha_2 ADV_{i,t} + \alpha_3 RD2_{i,t} + \alpha_4 INTEREST_{i,t} + \alpha_5 INTANG_{i,t} + \alpha_6 QUICTR_{i,t} + \alpha_7 ROA2_{i,t} + \alpha_8 \ln ASSET_{i,t} + Id + Yd + \varepsilon_{i,t} \quad (5)$$

All of the variables are defined in Appendix 4.B. We include 8 independent variables (*CAP*, *ADV*, *R&D*, *INT*, *INTEN*, *QR*, *ROA*, and *LNTA*) that contain the firm information about capital ratio, advertisement expenditure, research and development expenditure, interest expense, intangible asset ratio, quick ratio, return on asset, and firm size.

Table 4.7 Logistic regression for estimating propensity score

Panel A: Correlations among the variables for Logistic models

		(A1)	(A2)	(A3)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
HIGH_COMMON	*(A1)*	1										
HIGH_DEVELOPED	*(A2)*	-	1									
FOREIGN	*(A3)*	-	-	1								
CAP	*(B)*	-0.060	-0.008	0.087	1							
ADV	*(C)*	0.017	0.023	0.074	0.075	1						
RD2	*(D)*	-0.038	0.004	0.061	0.271	0.063	1					
INTEREST	*(E)*	0.090	0.064	-0.032	-0.516	-0.036	-0.079	1				
INTANG	*(F)*	-0.016	0.036	0.033	0.038	0.124	0.123	0.013	1			
QUICTR	*(G)*	-0.041	0.001	0.088	0.728	0.069	0.354	-0.392	-0.016	1		
ROA2	*(H)*	-0.045	-0.021	0.097	0.372	0.044	0.172	-0.210	0.093	0.222	1	
InASSET	*(I)*	0.056	0.055	0.052	-0.205	0.083	0.088	0.164	0.146	-0.157	-0.015	1

Panel B: Logistic regression for estimating Propensity Score

	HIGH_COMMON				*HIGH_DEVELOPED*				*FOREIGN*			
Dependent variable	Coef.	Std. Err.	z-Value		Coef.	Std. Err.	z-Value		Coef.	Std. Err.	z-Value	
Independent variables												
CAP	-0.308	0.596	-0.520		1.171	0.521	2.250	**	1.902	0.504	3.780	***
ADV	1.204	6.546	0.180		1.777	5.270	0.340		18.163	3.945	4.600	***
RD2	-5.976	5.580	-1.070		-13.342	4.190	-3.180	***	2.364	2.716	0.870	
INTEREST	44.467	15.974	2.780	***	58.337	14.921	3.910	***	16.804	16.187	1.040	
INTANG	-8.330	3.119	-2.670	***	0.932	1.357	0.690		0.607	1.183	0.510	
QUICTR	0.053	0.116	0.460		0.042	0.094	0.450		0.131	0.074	1.760	*
ROA2	-10.290	4.773	-2.160	**	-9.441	4.144	-2.280	**	17.106	3.514	4.870	***
InASSET	0.440	0.114	3.850	***	0.460	0.104	4.420	***	0.580	0.104	5.570	***
Id & Yd		included				included				included		
Intercept	-16.858	433.860	0.030		-18.491	629.072	-0.030		-21.619	1231.505	-0.020	
likelihood		-936.993				-1129.278				-1297.404		
Pseudo R-squared		0.1316				0.116				0.0978		
No. Obs.		8,034				8,301				8,297		

Panel C: Sample of Propensity Score Matching

	HIGH_COMMON			*HIGH_DEVELOPED*			*FOREIGN*		
	Off	On		Off	On		Off	On	
Dependent variable	support	support	Total	support	support	Total	support	support	Total
Untreated	0	7,794	7,794	0	8,005	8,005	0	7,951	7,951
Treated	7	233	240	8	288	296	10	336	346
Total	7	8,027	8,034	8	8,293	8,301	10	8,287	8,297

*,**,*** Indicates significance at the 0.10, 0.05 and 0.01 levels, respectively.

Correlations are based on 8,546 firm-year observations.

Pearson correlations in the lower diagonal.

Propensity score matching sample is matched by epanechnikov kernel model. (Bandwidth is 0.06, 3% of the treatment observations)

Table 4.7, Panel A presents the correlations among the variables for propensity score matching. There is a low level of correlation between all the variables.

Table 4.7, Panel B shows the results of the logistic regression from estimating the propensity score. The logistic model results of first column indicate that four variables are

significant: *INTEREST*, *INTANG*, *ROA2*, and *lnASSET*. It shows that a firm with higher interest expense, lower intangible assets rate and return on asset, and larger size, has a higher tendency to have a high proportion of common law countries in its FDI portfolio. The logistic model results of second column indicate that five variables are significant: *CAP*, *RD2*, *INTEREST*, *ROA2*, and *lnASSET*. It shows that a firm with higher capital ratio and interest expense, lower research and development expenditure and return on asset, and larger size, has a higher tendency to have a high proportion of developed countries in its FDI portfolio. The logistic model results of third column indicate that five variables are significant: *CAP*, *ADV*, *QUICTR*, *ROA2*, and *lnASSET*. It shows that a firm with higher capital ratio, advertisement expenditure, quick ratio, return on asset, and larger size, has a higher tendency with highest foreign firm ownership.

Table 4.7, Panel C shows the results of the sample of propensity score matching after using the Epanechnikov kernel model. For treatment variable *HIGH_COMMON*, the propensity score matching sample consist of 8,027. For treatment variable *HIGH_DEVELOPED*, the propensity score matching sample consist of 8,293. For treatment variable *FOREIGN*, the propensity score matching sample consist of 8,287.

Table 4.8 Propensity score matching results

		ETR					*BTAX*			
Dependent variable	Expected Sign	Model 1a (H1) Coef.	Model 1b (H2) Coef.	Model 2a (H3a) Coef.	Model 2b (H3b) Coef.	Expected Sign	Model 1a (H1) Coef.	Model 1b (H2) Coef.	Model 2a (H3a) Coef.	Model 2b (H3b) Coef.
Test variables										
HIGH_COMMON	+	0.0154 ***				-	-0.0026 *			
		3.28					-1.71			
HIGH_DEVELOPED	+		0.0122 ***			-		-0.0268 **		
			2.86					-1.99		
COMMON×FOREIGN	+			0.07157 ***		-			-0.0212 ***	
				3.66					-3.41	
DEVELOPED×FOREIGN	+				0.0479 ***	-				-0.0180 ***
					3.18					-3.75
FOREIGN	-			-0.2071 ***	-0.0187 ***	+			0.00726 ***	0.0075 ***
				-3.94	-3.60				4.33	4.55
Control Variables		Included	Included	Included	Included		Included	Included	Included	Included
Id & *Yd*		Included	Included	Included	Included		Included	Included	Included	Included
Adj R-squared		0.1748	0.1712	0.1766	0.1763		0.2841	0.2866	0.28	0.2802
No. Obs.		8,027	8,293	8,287	8,287		8,027	8,293	8,287	8,287

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

Table 4.8 presents the results of propensity score matching. The estimates on *HIGH_COMMON*, *HIGH_DEVELOPED*, *COMMON×FOREIGN*, *DEVELOPED×FOREIGN*, and *FOREIGN* are all significant and consistent with expected

signs. These results suggest that after partially controlling for the potential selection bias using propensity score analysis with nonparametric regression the former multivariate regression results do not change.

4.5.2 FIRM-LEVEL REGRESSION

Table 4.9 Firm-Level regression results

		ETR					*BTAX*			
Dependent variable	Expected Sign	Model 1c (H1) Coef.	Model 1d (H2) Coef.	Model 2c (H3a) Coef.	Model 2d (H3b) Coef.	Expected Sign	Model 1c (H1) Coef.	Model 1d (H2) Coef.	Model 2c (H3a) Coef.	Model 2d (H3b) Coef.
Test variables										
HIGH_COMMON	+	0.0266 ***				-	-0.0111 ***			
		2.69					-3.04			
HIGH_DEVELOPED	+		0.0246 ***			-		-0.0093 ***		
			2.88					-2.93		
COMMON×FOREIGN	+			0.1064 ***		-			-0.1162 ***	
				2.7					-8.14	
DEVELOPED×FOREIGN	+				0.0931 ***	-				-0.0822 ***
					2.96					-7.17
FOREIGN	-			-0.0368 ***	-0.3894 ***	+			0.02292 ***	0.0207 ***
				-3.23	-3.40				5.56	4.97
Control Variables		Included	Included	Included	Included		Included	Included	Included	Included
Id		Included	Included	Included	Included		Included	Included	Included	Included
Adj R-squared		0.1841	0.1848	0.1859	0.1868		0.3607	0.3604	0.3864	0.3798
No. Obs.		1,382	1,382	1,382	1,382		1,382	1,382	1,382	1,382

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

Considering the portfolio of FDI is likely to remain relatively stable over time, we also perform analysis at the firm-level using the baseline regressions. We use the average of the variables in the multivariate regression model (1) and model (2). Then we use the firm-level average variables to perform the regressions. Table 4.9 presents the results of firm-level regression. The results are all consistent with the former multivariate regression results.

4.5.3 FAMA AND MACBETH REGRESSION

Table 4.10 Fama-MacBeth regression results

		ETR					*BTAX*			
Dependent variable	Expected Sign	Model 1e (H1) Coef.	Model 1f (H2) Coef.	Model 2e (H3a) Coef.	Model 2f (H3b) Coef.	Expected Sign	Model 1e (H1) Coef.	Model 1f (H2) Coef.	Model 2e (H3a) Coef.	Model 2f (H3b) Coef.
Test variables										
HIGH_COMMON	+	0.0173 **				-	-0.0040 **			
		2.74					-2.45			
HIGH_DEVELOPED	+		0.0111 **			-		-0.0038 ***		
			2.46					-3.29		
COMMON×FOREIGN	+			0.09798 ***		-			-0.0156 **	
				3.13					-2.44	
DEVELOPED×FOREIGN	+				0.0499 **	-				-0.0151 ***
					2.67					-3.26
FOREIGN	-			-0.025 ***	-0.0200 **	+			0.00727 ***	0.0077 ***
				-3.14	-2.76				4.26	4.33
Control Variables		Included	Included	Included	Included		Included	Included	Included	Included
Yd		Included	Included	Included	Included		Included	Included	Included	Included
Avg. R-squared		0.2049	0.2039	0.206	0.2053		0.3213	0.3213	0.3236	0.3237
No. Obs.		8,546	8,546	8,546	8,546		8,546	8,546	8,546	8,546

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

Following Fama and MacBeth (1973), and Hoi, Wu, and Zhang (2013), we estimate the model (1) and model (2) using the Fama and MacBeth (1973) method to mitigate statistical concerns arising from serial dependence of regression errors. In the first step, we declare data to be a time series data and perform a cross sectional regression for each single time period without year dummies. Then, in the second step, the coefficient estimates are estimated (i.e. the average of the coefficient estimates in the first step). Table 4.10 presents the results of Fama and MacBeth regression. The results are all consistent with the former multivariate regression results.

4.5.4 WITHOUT FINANCIAL CRISIS PERIOD

Table 4.11 Non-financial crisis period results

		ETR					*BTAX*			
Dependent variable	Expected Sign	Model 1a (H1) Coef.	Model 1b (H2) Coef.	Model 2a (H3a) Coef.	Model 2b (H3b) Coef.	Expected Sign	Model 1a (H1) Coef.	Model 1b (H2) Coef.	Model 2a (H3a) Coef.	Model 2b (H3b) Coef.
Test variables										
HIGH_COMMON	+	0.0178 ***				-	-0.0040 **			
		3.62					-2.5			
HIGH_DEVELOPED	+		0.0115 ***			-		-0.0036 **		
			2.62					-2.49		
COMMON×FOREIGN	+			0.07702 ***		-			-0.0238 ***	
				3.71					-3.51	
DEVELOPED×FOREIGN	+				0.0498 ***	-				-0.0194 ***
					3.12					-3.73
FOREIGN	-			-0.2414 ***	-0.0217 ***	+			0.00914 ***	0.0093 ***
				-4.34	-3.94				5.03	5.18
Control Variables		Included	Included	Included	Included		Included	Included	Included	Included
Id & *Yd*		Included	Included	Included	Included		Included	Included	Included	Included
Adj R-squared		0.1727	0.172	0.1734	0.173		0.2853	0.2853	0.2871	0.2873
No. Obs.		7,208	7,208	7,208	7,208		7,208	7,208	7,208	7,208

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

The stock market can well reflect the situation that listed Japanese firms suffer from the financial crisis. According to the stock data from the Tokyo Stock Exchange, the Tokyo Stock Price Index (TOPIX) decreased dramatically from the beginning of the year 2007 to the end of year 2008[35]. To assess the sensitivity of multivariate regression results, we ignore the impact of the financial crisis during 2007-2008 on the results by dropping the period of fiscal year 2007 and 2008. Table 4.11 presents the results of non-financial crisis period. The results are all consistent with the former multivariate regression results.

4.5.5 ALTERNATE CONTROL VARIABLES

Table 4.12 Alternate control variables results

		ETR					*BTAX*			
Dependent variable	Expected Sign	Model 1g (H1) Coef.	Model 1h (H2) Coef.	Model 2g (H3a) Coef.	Model 2h (H3b) Coef.	Expected Sign	Model 1g (H1) Coef.	Model 1h (H2) Coef.	Model 2g (H3a) Coef.	Model 2h (H3b) Coef.
Test variables										
HIGH_COMMON	+	0.0165 ***				-	-0.0038 ***			
		3.54					-2.63			
HIGH_DEVELOPED	+		0.0140 ***			-		-0.0042 ***		
			3.33					-3.28		
COMMON×FOREIGN	+			0.0713 ***		-			-0.0186 ***	
				3.66					-3.12	
DEVELOPED×FOREIGN	+				0.4571 ***	-				-0.0150 ***
					3.05					-3.26
FOREIGN	-			-0.2107 ***	-0.0187 ***	+			0.00755 ***	0.0076 ***
				-4.04	3.05				4.74	4.84
Control Variables		Included	Included	Included	Included		Included	Included	Included	Included
Id & *Yd*		Included	Included	Included	Included		Included	Included	Included	Included
Adj R-squared		0.1763	0.1761	0.1767	0.1763		0.3373	0.3376	0.3384	0.3385
No. Obs.		8,546	8,546	8,546	8,546		8,546	8,546	8,546	8,546

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

Finally, to improve the robustness of the results, we create three variables to capture the number of employees (*EMP*) (Rego and Wilson, 2012), growth opportunity (Δ*SALE*) (Hoi, Wu, and Zhang, 2013), and inventory intensity (*INVINT*) (Taylor and Richardson, 2012) and add them to the regression model (1) and model (2)[36]. Table 4.12 presents the results of regression models with the alternate control variables. The results are all consistent with the former multivariate regression results.

[35] The decreasing rate of TOPIX from the beginning of the year 2007 (1698.95) to the end of year 2008 (875.91) reach to 48.4%.

[36] Where, *EMP* is the logarithm of the number of employees; Δ*SALE* is changes in sales / lagged net sales; and *INVINT* is inventory / lagged total assets.

Appendices

4.A Sample description by country

Country CIA	Legal system				Degree of development			Tax haven	Obs.
	Common law	Civil law	Mixed law	Other	Developing economies	Transition economies	Developed economies		
Algeria			○		○				5
Angola		○			○				11
Argentina		○			○				102
Australia	○						○		786
Bahrain			○		○			○	19
Bangladesh			○		○				48
Belgium		○					○		391
Bosnia and Herzegovina		○				○			9
Botswana			○		○				2
Brazil		○			○				706
Brunei			○		○				5
Bulgaria		○					○		5
Burma			○		○				36
Cambodia		○			○				31
Canada	○						○		621
Chile		○			○				65
China		○			○				3,819
Colombia		○			○				33
Costa Rica		○			○				2
Croatia		○					○		26
Czech Republic		○					○		247
Denmark		○					○		85
Ecuador		○			○				8
Egypt			○		○				25
El Salvador		○			○				7
Estonia		○					○		7
Fiji	○				○				11
Finland		○					○		72
France		○					○		699
Georgia		○				○			9
Germany		○					○		1,276
Ghana			○		○				7
Greece		○					○		45
Guatemala		○			○				5
Hong Kong			○		○				1,660
Hungary		○					○		181
India	○				○				1,005
Indonesia		○			○				1,457
Iran				○	○				6
Ireland	○						○		44
Israel			○				○		17
Italy		○					○		422
Jamaica	○				○				11
Kazakhstan		○				○			20
Kenya			○		○				20
Korea, South			○		○				1,436
Kuwait			○		○				7
Laos		○			○				30
Latvia		○					○		7
Liberia			○		○			○	9
Lithuania		○					○		10
Luxembourg		○					○		37
Madagascar		○			○				2

4.A (continued)

Country CIA	Legal system				Degree of development			Tax haven	Obs.
	Common law	Civil law	Mixed law	Other	Developing economies	Transition economies	Developed economies		
Malawi			○		○				11
Malaysia			○		○				1,418
Mauritius		○			○			○	17
Mexico		○			○				641
Mongolia		○			○				12
Montenegro		○				○			6
Morocco			○		○				12
Mozambique			○		○				1
Netherlands		○					○		699
New Zealand	○						○		184
Nigeria			○		○				31
Norway			○				○		48
Oman			○		○				7
Pakistan	○				○				42
Panama		○			○			○	82
Papua New Guinea			○		○				18
Paraguay		○			○				17
Peru		○			○				61
Philippines			○		○				803
Poland		○					○		213
Portugal		○					○		72
Qatar			○						16
Romania		○					○		28
Russia		○				○			223
Samoa			○		○			○	14
Saudi Arabia				○	○				114
Senegal		○			○				3
Serbia		○				○			21
Singapore	○				○				1,827
Slovakia		○					○		41
Slovenia		○					○		21
Solomon Islands			○		○				26
South Africa			○		○				150
Spain		○					○		413
Sri Lanka			○		○				73
Sweden		○					○		171
Switzerland		○					○		154
Taiwan		○			○				1,944
Tanzania	○				○				8
Thailand		○			○				2,573
Tonga	○				○			○	11
Trinidad and Tobago	○				○				11
Turkey		○			○				122
Uganda			○		○				10
Ukraine		○				○			15
United Arab Emirates			○		○				152
United Kingdom	○						○		1,180
United States	○						○		3,308
Uruguay		○			○				11
Vanuatu			○		○			○	11
Venezuela		○			○				33
Vietnam		○			○				924
Zambia			○		○				12
Zimbabwe			○		○				16

4.B Definitions of the variables about propensity score matching test.

Variables	Definitions
Dependent variables	
HIGH_COMMON	A dummy variable that equals 1 if *COMMON* > 75% for a firm, and 0 otherwise;
HIGH_DEVELOPED	A dummy variable that equals 1 if *DEVELOPED* > 75% for a firm, and 1 otherwise;
FOREIGN	Measure of foreign investors' interests. A dummy variable that equals 1 if the proportion of a firm's foreign ownership is first rank, and 0 otherwise;
Independent variables	
CAP	Ownership equity / lagged total assets;
ADV	Advertisement expenditure / net sales;
RD2	Research and development expenditure / net sales;
INTEREST	Interest expense / total debt;
INTANG	Intangible asset / lagged total assets;
QUICTR	Liquid assets / current liabilities;
ROA2	Net income / lagged total assets; and
InASSET	Natural logarithm of the total assets.

CHAPTER 5 HOW DO AUDITORS CHARGE AUDIT FEES BASED ON CLIENTS' FDI CHARACTERISTICS?

5.1 Overview

We focus on three types of FDI characteristics that likely reflect the environmental risk in the host countries, and hence clients' risk, that is, the number of common law countries, developing countries, and the geographic distance of countries. Given that host country risk arising from the under-developed institutions, including the quality of regulator, rule of law, corruption control, and instability of policy (Buckley et al., 2016), it is possible these three types of FDI characteristics are likely to increase auditor risk and fees.

In addition, we further investigate the influence of homogeneity of industries on the effects of FDI characteristics on audit fees. Since higher industry homogeneity could lead to lower auditor effort, and hence lower audit fees (Cairney and Stewart, 2015). Given the audit effort is lower because of higher industry homogeneity, higher environmental risk from some specific FDI characteristics is less likely to further increase audit fees.

Based on the reasoning mentioned above, using a sample of 14,263 firm-year observations from Japanese listed firms in the period fiscal year 2004 to 2014, we conduct a multivariate regression analysis that examines the association between audit fees and the FDI characteristics. Specifically, we use three measures of FDI's characteristics: (1) square root of the number of common law countries that client invested in, (2) square root of the number of developing countries that client invested in, and (3) square root of total geographic distance between Japan and each host country.[37] Besides, we apply a client oriented measure for industry homogeneity, which can reflect similar companies from dissimilar companies in terms of the nature of their operations (Cairney and Stewart, 2015). In this analysis, we control for known determinants of client attributes, audit attributes, engagement attributes, and miscellaneous attributes that have mentioned in the prior audit-fee studies.

[37] Based on the Toyo Keizai's Overseas Japanese Companies database, we collect the information on how many and what countries is invested by each firm and by each year. Based on the WORLD FACTBOOK of the Central Intelligence Agency (CIA) and the data center of UNCTAD, we define the legal system and the degree of development for each country, respectively.

We find that audits of companies investing in a greater number of common law countries and developing countries, respectively, will exhibit higher audit fees. Total geographic distance to host countries also increases audit fees. Additionally, it is noteworthy that the homogeneity of industries in which a firm competes negatively moderates these relationships.

Some additional findings of interest are listed as follows: (1) The audits of companies investing in a greater number of common law countries, developing countries will exhibit higher (lower) audit fees premiums (discounts). Total geographic distance to host countries also increase (decrease) audit fees premiums (discounts). Additionally, the homogeneity of industries in which a firm competes negatively moderates these relationships, respectively. (2) The audits of companies with a higher proportion of common law (developing) countries in its FDI portfolio will exhibit higher audit fees, and the homogeneity of industries in which a client competes negatively moderates these relationships, respectively. (3) Clients assess U.S. markets (with high earnings management risk) negatively (positively) moderates the relationship between the audit fees and the number of common law countries investment, the relationship between the audit fees and the number of developing countries investment, and the relationship between the audit fees and the total geographic distance to host countries, respectively.

A number of sensitivity tests are provided. First, we perform variations on the measures of three of the control variables. Second, we add six alternate control variables into the models. Third, we control for self-selection bias by using Heckman two-stage approach. Fourth, we control for the possibility that the results are driven by general price increases over time. Fifth, we test the results with different sample periods. Sixth, we impose further sample restrictions to make the sample with more homogenous class of audit clients. Lastly, we separate the full sample into two subsample by size with consideration the influence of size on the results. The results are robust to all of these sensitivity tests.

The remainder of this chapter is as follows: Section 5.2 provides the literature review and hypothesis development. Section 5.3 describes the empirical methods about regression models and sample selection. Section 5.4 presents descriptive statistics and correlations of

the sample and the multivariate results. Section 5.5 carries out sensitivity tests. Section 6 reports robustness checks. Finally, the Appendix provides the sample description by country.

5.2 Literature Review and Hypothesis Development

Three decades of audit fees research show that major fee determinants include client perspectives (e.g. ownership characteristics, cross-list, earnings management risk, business risk, tax aggressiveness, etc.), auditor perspectives (e.g. auditor size, auditor quality, auditor location, etc.), and engagement issues between auditors and clients (e.g. busy season, client bargaining power, auditor industry specialization, etc.). Some of these studies show that there is a positive relationship between audit fees and the number of foreign subsidiaries, which considered as a control variable for clients' complexity. However, few studies further discuss what types of the characteristics of FDI, as a reflection of firms' environment risk, could effect on audit fees.

Several studies mention that the FDI strategy influenced by the environmental risk (Brouthers, 2002; Henisz, 2000; Jung, Beamish, and Goerzen, 2010). Political risk, cultural risk and economic and financial risk are the different dimensions of the host country investment environmental risk (Goerzen, Sapp, and Delios, 2010). Given these findings, it is possible that some specific types of FDI characteristic are likely to reflect high environmental risk, thus increase auditor risk and fees. In this section, we discuss the characteristics of FDI from three perspectives that is the legal system, the degree of development, and the geographic distance, and then the potential effects on audit fees. Lastly, we add to explain a possible moderating effects of industry homogeneity.

5.2.1 AUDIT FEES AND FDI IN COMMON LAW COUNTRIES AS HIGH LITIGATION RISK

Litigation risk has received extensive attention in accounting field. It has effects on the firm' performance, which have been discussed by a wide range of studies (Khurana and Raman, 2004; Koh, Qian, and Wang, 2014; Laux, 2010; Laux and Stocken, 2012). However,

they do not consider the characteristic of FDI in common law countries as a potential dimension of litigation risk.

Japanese firms with FDI are international organizations with global operations and, therefore, have to be exposed to the different legal environment in different host countries. As La Porta et al. (1998) mention that there are two types of legal system, common-law countries and civil-law countries, and Law enforcement is strong in common-law countries, while it is weak in the civil-law countries, especially in French-civil-law countries. In along with this finding, we expect that a firm FDI with great number of common-law countries should be under greater litigation risk due to stronger law enforcement in common-law countries.

Prior studies show that the high litigation risk always associated with higher audit fees. Abbott, Parker, and Peters (2006) apply the industry-adjusted price-earnings ratio to represent litigation risk and find that the correlation between audit fees and earnings management risk is stronger in greater litigation risk environments. Seetharaman, Gul, and Lynn (2002) assume that the litigation risk is likely to increase when firms cross-list in the U.S. market and find that auditors charge higher audit fees for those firms. Choi et al. (2008) collect the sample from 15 countries and find that the strength of countries' legal environment is an important factor for the increasing of audit fees.

Considering these prior studies, we propose that FDI in more common law countries are imposed to a higher environmental risk with stronger investor protection, and that they are more likely to show higher litigation risk. If so, FDI in more common law countries is more likely to resort to higher audit fees. Thus, we present the following hypothesis:

H1: Audits of companies investing in a higher number of common law countries will exhibit, ceteris paribus, higher audit fees.

This chapter is closely related to Abbott, Parker, and Peters (2006), Seetharaman, Gul, and Lynn (2002), and Choi et al. (2008) that these studies also investigate the relation between litigation risk and audit fees. However, this chapter differs from theirs in several

aspects. Firstly, their research examines litigation risk and audit fees with UK or U.S. sample, while we focus on the Japanese sample. Secondly, we provide an alternative dimension for representing litigation risk (i.e. the square root of the number of clients' FDI portfolio in common law countries) rather than using dummy variable of cross-listed on the U.S. market, industry-adjusted price-earnings ratio, or Wingate's (1997) litigation index. Thirdly, we collect the data from a longer and more recent period, thus, lead us to more persuasion results. All in all, we shed light on whether the characteristic of FDI in common law countries as a potential dimension of litigation risk.

5.2.2 AUDIT FEES AND FDI IN DEVELOPING COUNTRIES AS HIGH BUSINESS RISK

Business risk has effects on the audit fees, which have clarified by several studies (Johnstone, 2000; Houston, Peters, and Pratt, 1999; Lyon and Maher, 2005; Morgan and Stocken, 1998; Stanley, 2011; and Bell, Landsman, and Shackelford, 2001). However, these prior studies do not mention the characteristic of FDI in developing countries as a potentially dimension of business risk.

We consider that FDI in developing countries will have a positive impact on audit fees based on several prior studies. Bushman, Piotroski, and Smith (2004) examine the relationship between countries' financial development of economy and firm transparency and find that firm financial transparency positively related to the development of economy. They mention that countries' information environment is mainly associated with their institutions. Francis et al. (2009) further discuss that these institutions connect with the level of financial development. Based on these findings, we suggest that firms with FDI in a greater number of developing countries (i.e. comparatively lower level of development) will lead to a lower level of transparency.

Also, Danielsen, Van Ness, and Warr (2007) use an American sample of 741 observations in year 2001 and find less transparent firms tend to pay more audit fees to their auditors for the costly risks which may arise from unpredicted events. In addition, Halter, de Arruda, and Halter (2009) find that transparency is an effect way for reducing corruption,

thus it can improve firm image. In other words, less transparency likely connects with high possibility to increase corruption, which reflecting higher business risk.

Given that the clients with FDI in more developing countries are more likely have a low level of transparency, we propose that the clients with FDI in more developing countries reflect higher business risk, and more likely to be discouraged by higher audit fees. Thus, we state the following hypothesis:

H2: Audits of companies investing in a higher number of developing countries will exhibit, ceteris paribus, higher audit fees.

5.2.3 AUDIT FEES AND FDI IN LONG DISTANCE TO HOST COUNTRIES AS GREAT AUDIT EFFORT

Based on the Simunic (1980)'s audit fee model, greater audit efforts relate with the higher audit fees. Several studies discuss audit efforts from several aspects (Davis, Ricchiute, and Trompeter, 1993; Niemi, 2002; and Niemi, 2005). However, they do not mention the characteristic of FDI with long geographic distance to host countries as a potential indirect dimension of audit effort.

FDI with long distance to host countries likely influence audit fees through its effect on the effort of delivering audit services to great geographic distance (e.g. long-distance travel, communication, limitation for time difference, etc.). Vera-Mun˜oz, Ho, and Chow (2006) mention that auditors' knowledge will be enhanced and audit time will be saved when auditor geographically close to their clients. In addition, Francis, Stokes, and Anderson (1999) notice that auditor and client who located at same geographical area share more knowledge that can reduce the misunderstanding, thus can save contracting costs.[38] we propose that the greater the location between auditor and client, less mutual knowledge they

[38] Francis, Stokes, and Anderson (1999) mention that contracting costs include auditor search costs, costs of delivering the audit, and client search and monitoring costs.

share, which likely lead to higher contracting costs, including search costs for the auditor, and transportation of audit teams to client sites.

Based on above studies, the long distance between auditor and client may lead to a great audit effort. Therefore, we expect that the clients' FDI with long distance to host countries ask for more audit effort, in return more audit fees will be charged by auditors. Accordingly, we hypothesize:

H3: Audits of companies with longer geographic distance to FDI host countries will exhibit, ceteris paribus, higher audit fees.

5.2.4 THE CLIENT INDUSTRY HOMOGENEITY ON EFFECT ON CHARACTERISTIC OF FDI AND AUDIT FEES

Several studies consider industry characteristic as an important factor on audit fees. (Casterella et al., 2004; Huang et al., 2007; and Cairney and Stewart, 2015). There are two different perspectives for representing industry characteristic, one is auditor-oriented measure, industry specialists; and the other is client-oriented, industry homogeneity. For example, Huang et al. (2007) use auditor-oriented measure for industry characteristic and find that audit fees decrease for clients who really relate to auditors' client groups. While, Cairney and Stewart (2015) use proxy of client-operating similarity as client oriented measure for industry characteristic and find that audit fees are lower in more homogenous industries. In this chapter, we focus on the client-oriented measure, industry homogeneity. Because we consider that client operating characteristic likely relative to its' FDI characteristic.

Consistent with Cairney and Stewart (2015)'s research, we consider that clients industry homogeneity is negatively related to audit fees as well. Then we extend this chapter to examine whether the effect of clients' FDI characteristics on audit fees will be influenced by clients industry homogeneity. Based on H1, H2 and H3, we estimate that the clients' FDI characteristic with greater number of common law countries, developing countries, and the geographic distance of countries have positive effects on audit fees, which likely to be

reduced by clients' industry homogeneity (i.e. client-operating similarity). Thus, we hypothesize:

H4a: The homogeneity of industries in which companies compete negatively moderates the relationship between the audit fees and the number of common law FDI host countries.

H4b: The homogeneity of industries in which companies compete negatively moderates the relationship between the audit fees and the number of developing FDI host countries.

H4c: The homogeneity of industries in which companies compete negatively moderates the relationship between the audit fees and the total geographic distance to FDI host countries.

5.3 Methods

5.3.1 REGRESSION MODELS

Following prior studies, we use the following regression model (1) to test the H1 and H4a, model (2) to test the H2 and H4b, and use model (3) to test the H3 and H4c:

$$\begin{aligned} AFEE_{i,t} = {} & \alpha_0 + \alpha_1 COMMON_{i,t} + \alpha_2 HOM \times COMMON_{i,t} + \alpha_3 HOM_{i,t} + \alpha_4 ASSET_{i,t} + \alpha_5 BUS\_SEG_{i,t} + \alpha_5 GEO\_SEG_{i,t} \\ & + \alpha_6 SUB_{i,t} + \alpha_7 FOR\_SAL_{i,t} + \alpha_8 INV\_ERC_{i,t} + \alpha_9 GR\_SAL_{i,t} + \alpha_{10} LOSS_{i,t} + \alpha_{11} FOR\_INC_{i,t} + \alpha_{12} ROA_{i,t} \\ & + \alpha_{13} DEBT_{i,t} + \alpha_{14} CURR_{i,t} + \alpha_{15} GOV\_SHA_{i,t} + \alpha_{16} FOR\_SHA_{i,t} + \alpha_{17} FIN\_SHA_{i,t} + \alpha_{18} PARE_{i,t} + \alpha_{19} BIG4_{i,t} \\ & + \alpha_{20} AUD\_CHA_{i,t} + \alpha_{21} OPIN_{i,t} + \alpha_{22} GC_{i,t} + \alpha_{23} RD_{i,t} + \alpha_{24} FOREC_{i,t} + \alpha_{25} CONS_{i,t} + \alpha_{26} ABSDA_{i,t} + \alpha_{27} US_{i,t} + Yd + \varepsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} AFEE_{i,t} = {} & \alpha_0 + \alpha_1 DEVELOPING_{i,t} + \alpha_2 HOM \times DEVELOPING_{i,t} + \alpha_3 HOM_{i,t} + \alpha_4 ASSET_{i,t} + \alpha_5 BUS\_SEG_{i,t} + \alpha_5 GEO\_SEG_{i,t} \\ & + \alpha_6 SUB_{i,t} + \alpha_7 FOR\_SAL_{i,t} + \alpha_8 INV\_ERC_{i,t} + \alpha_9 GR\_SAL_{i,t} + \alpha_{10} LOSS_{i,t} + \alpha_{11} FOR\_INC_{i,t} + \alpha_{12} ROA_{i,t} \\ & + \alpha_{13} DEBT_{i,t} + \alpha_{14} CURR_{i,t} + \alpha_{15} GOV\_SHA_{i,t} + \alpha_{16} FOR\_SHA_{i,t} + \alpha_{17} FIN\_SHA_{i,t} + \alpha_{18} PARE_{i,t} + \alpha_{19} BIG4_{i,t} \\ & + \alpha_{20} AUD\_CHA_{i,t} + \alpha_{21} OPIN_{i,t} + \alpha_{22} GC_{i,t} + \alpha_{23} RD_{i,t} + \alpha_{24} FOREC_{i,t} + \alpha_{25} CONS_{i,t} + \alpha_{26} ABSDA_{i,t} + \alpha_{27} US_{i,t} + Yd + \varepsilon_{i,t} \end{aligned} \quad (2)$$

$$AFEE_{i,t} = \alpha_0 + \alpha_1 DISTANCE_{i,t} + \alpha_2 HOM \times DISTANCE_{i,t} + \alpha_3 HOM_{i,t} + \alpha_4 ASSET_{i,t} + \alpha_5 BUS\_SEG_{i,t} + \alpha_5 GEO\_SEG_{i,t}$$
$$+ \alpha_6 SUB_{i,t} + \alpha_7 FOR\_SAL_{i,t} + \alpha_8 INV\_ERC_{i,t} + \alpha_9 GR\_SAL_{i,t} + \alpha_{10} LOSS_{i,t} + \alpha_{11} FOR\_INC_{i,t} + \alpha_{12} ROA_{i,t}$$
$$+ \alpha_{13} DEBT_{i,t} + \alpha_{14} CURR_{i,t} + \alpha_{15} GOV\_SHA_{i,t} + \alpha_{16} FOR\_SHA_{i,t} + \alpha_{17} FIN\_SHA_{i,t} + \alpha_{18} PARE_{i,t} + \alpha_{19} BIG4_{i,t}$$
$$+ \alpha_{20} AUD\_CHA_{i,t} + \alpha_{21} OPIN_{i,t} + \alpha_{22} GC_{i,t} + \alpha_{23} RD_{i,t} + \alpha_{24} FOREC_{i,t} + \alpha_{25} CONS_{i,t} + \alpha_{26} ABSDA_{i,t} + \alpha_{27} US_{i,t} + Yd + \varepsilon_{i,t} \quad (3)$$

Where all variables are defined in Table 5.1. The dependent variable (*AFEE*) is the natural log of total audit fees, in Japanese Yen, at the end of the fiscal year. This definition is following prior studies (Hay, Knechel, and Wong, 2006; Jha and Chen, 2015; Lee, Li, and Sami, 2015; Kwon, Lim, and Simnett, 2014; Kannan, Skantz, and Higgs, 2014; Donohoe and Knechel, 2014; Beck and Mauldin, 2014; Badertscher et al., 2014; Abbott, Parker, and Peters, 2012; Ghosh and Pawlewicz, 2009; Abbott, Parker, and Peters, 2006; Hay, Knechel, and Wong, 2006; Niemi, 2005; Lyon and Maher, 2005; Abbott et al., 2003; Seetharaman, Gul, and Lynn, 2002; Higgs and Skantz, 2006; Blankley, Hurtt, and MacGregor, 2012; and Deis Jr. and Giroux, 1996).

To examine the H1, we analyze the coefficient on *COMMON*. We define *COMMON* as the square root of the number of clients' FDI portfolio in common law countries. To estimate the value of *COMMON*, we get the information about Japanese firms' FDI by each country from the Toyo Keizai's Overseas Japanese Companies database. Then we define the legal system for each country based on the WORLD FACTBOOK of the CIA. Thus, we can analyze each firm's FDI portfolio from the perspective of the legal system. The information about FDI and legal system by country is listed in Appendix 5.A. We expect a positive association between *COMMON* and *AFEE*.

To examine the H2, we analyze the coefficient on *DEVELOPING*. We define *DEVELOPING* as the square root of the number of clients' FDI portfolio in developing countries. For estimating the value of *DEVELOPING*, we define the degree of development for each country based on the data center of UNCTAD, which is listed in Appendix 5.A. Thus, we can analyze each firm's FDI portfolio from the perspective of the degree of development. We expect a positive association between *DEVELOPING* and *AFEE*.

To examine the H3, we analyze the coefficient on *DISTANCE*. We define *DISTANCE* as the square root of total geographic distance, in kilometers, between Japan and each FDI

host country according to the coordinates of the geographic center of the countries. For estimating the value of *DISTANCE*, we decide the distance based on the WORLD FACTBOOK of the CIA. Thus, we can analyze each firm' FDI portfolio from the perspective of the geographic distance. We expect a positive association between *DISTANCE* and *AFEE*.

To examine the H4a, H4b, and H4c, we analyze the coefficient on *HOM*×*COMMON*, *HOM*×*DEVELOPING*, and *HOM*×*DISTANCE*, respectively. We define *HOM*×*COMMON* as an interaction of the value of *HOM* and the value of *COMMON*, *HOM*×*DEVELOPING* as an interaction of the value of *HOM* and the value of *DEVELOPING*, and *HOM*×*DISTANCE* as an interaction of the value of *HOM* and the value of *DISTANCE*. We define *HOM* as centered industry homogeneity measure, which centered by subtracting the mean value of the industry homogeneity measure.[39] The industry homogeneity measure is the Pearson partial correlation coefficient between a firm's annual change in operating expenses and the mean change for its industry (Cairney and Stewart, 2015).[40] We expect a negative association between *HOM*×*COMMON* and *AFEE*, *HOM*×*DEVELOPING* and *AFEE*, and *HOM*×*DISTANCE* and *AFEE*, respectively.

According prior studies, we control for determinants of client attributes that affect audit fees. *ASSET* is included to control for the size of audit clients on audit fees. The larger the size of the audit client is, the higher the audit fees will be. Thus, we expect a positive coefficient on *ASSET*; *BUS_SEG*, *GEO_SEG*, *SUB*, and *FOR_SAL*, are included to control for the complexity of audit clients on audit fees. We expect the more complexity there are, the higher the audit fees will be. Accordingly, the coefficients on *BUS_SEG*, *GEO_SEG*, *SUB*, and *FOR_SAL*, are positive; *INV_ERC* and *SD_INC* are included to control for the inherent risk of audit clients on audit fees. Given that auditor will charge more fees for higher

[39] We perform centering procedure for this variable to reduce the potential influence of multicollinearity.

[40] Along with Cairney and Stewart (2015), *HOM* is measured from following model:
$CHOPX_{i,k,t} = f(INDCHOPX, MKTCHOPX)$,
where *CHOPX* is the change rate in operating expenses. *INDCHOPX* is determined by the averaged *CHOPX* by each industry, and *MKTCHOPX* is determined by the averaged *CHOPX* by each year. At least ten firms per year are required for the industry to be retained in the sample. The *HOM* measure is the partial correlation coefficient between $CHOPX_{i,k,t}$ and $INDCHOPX_{k,t}$.

inherent risk, positive coefficients on *INV_ERC* and *SD_INC* are expected; *GR_SAL*, *LOSS*, *ROA*, and *FOR_INC* are included to control for the profitability of audit clients on audit fees. In general, the worse the performance of the companies, the more risk to the auditor and the higher the audit fees will be. So the coefficients on *LOSS* is positive and *GR_SAL*, *ROA* and *FOR_INC* are negative, respectively; *CURR* and *DEBT* are included to control for the leverage of audit clients on audit fees. Leverage also measure the risk of a client failing (Hay, Knechel, and Wong, 2006), thus we expect a negative coefficient on *CURR*, and a positive coefficient on *DEBT*; *FOR_SHA*, *GOV_SHA*, *FIN_SHA*, and *PARE* are included to control the form of ownership. Since some forms of ownership are considered to increase the auditor's potential exposure to liability and lead to higher audit fees (Hay, Knechel, and Wong, 2006). According to prior research (Niemi, 2004), we expect a positive coefficient on *FOR_SHA*, *GOV_SHA*, and *FIN_SHA*, respectively, and a negative coefficient on *PARE*.

According prior studies, we also control for determinants of auditor attributes that affect audit fees. *BIG4* is included to control for the audit quality of auditor on audit fees. The higher the audit quality of the auditor is, the higher the audit fees will be. Thus, we expect a positive coefficient on *BIG4*; *AUD_CHA* is included to control for the audit tenure of auditor on audit fees. A common reason for clients changing auditors is to obtain a fee discount from new auditors (Williams, 1988). Along with prior studies (Jha and Chen, 2015; Beck and Mauldin, 2014), coefficients on *AUD_CHA* is negative.

In addition, based on prior studies, we also consider the determinants of engagement attributes that affect audit fees. *OPIN*, and *GC* are included to control for the audit problems of engagement on audit fees. The higher the audit problem of the engagement is, the higher the audit fees will be. Thus, we expect a positive coefficient on *OPIN*, and *GC*.

Meanwhile, we include some determinants of miscellaneous attributes that affect audit fees. We include *RD* to control for research and development expense that could potentially affect audit fees measure (Donohoe and Knechel, 2014). We also control for the cross-listed on U.S. market (US) because Seetharaman, Gul, and Lynn (2002) show that UK auditors charge higher audit fees when their clients cross-listed on U.S. market. Furthermore, we consider the forecast error (*FOREC*) because Donohoe and Knechel (2014) use in their

research. Along with their studies, a positive coefficient on *FOREC* is expected. In addition, Lee, Li, and Sami (2015) suggest that higher conditional conservatism is associated with lower audit fees. Hence, we include the conditional conservatism measure (*CONS*) and expect a negative coefficient on *CONS*.[41] Since the earnings management risk may also affect audit fees (Abbott, Parker, and Peters, 2006), we include the absolute value of discretionary accruals (*ABSDA*) as a control and expect a positive coefficient on *ABSDA*. Finally, considering year concentration, we include year dummies to alleviate this concern.

[41] Based on the following equation (Khan and Watts 2009), we obtain coefficient of estimate *CONS*.

$$\begin{aligned} EPS_{i,t} &= \alpha_0 + \alpha_{1t} SIZE_{i,t} + \alpha_{2t} MTB_{i,t} + \alpha_{3t} LEV_{i,t} \\ &+ DR_{i,t}(\beta_{1t} + \beta_{2t} SIZE_{i,t} + \beta_{3t} MTB_{i,t} + \beta_{4t} LEV_{i,t}) \\ &+ ERT_{i,t}(\delta_{1t} + \delta_{2t} SIZE_{i,t} + \delta_{3t} MTB_{i,t} + \delta_{4t} LEV_{i,t}) \\ &+ DR_{i,t} \times RET_{i,t}(\lambda_{1t} + \lambda_{2t} SIZE_{i,t} + \lambda_{3t} MTB_{i,t} + \lambda_{4t} LEV_{i,t}) + \varepsilon_{i,t} \end{aligned}$$

where *EPS* is the earnings per share before extraordinary items, deflated by prior fiscal year price; *RET* is the return on firm form nine months before fiscal year end to three months after fiscal year end t; *DR* is a dummy variable equal to 1 if *RET* is negative, and 0 otherwise; *SIZE* is the natural log of total assets; *MTB* is the market value; and *LEV* is total leverage deflated by total assets. We sum the coefficients of λ_1, λ_2, λ_3, and λ_4 as *CONS*.

Table 5.1 Definitions and measurements of the variables

Variables	Definitions
Dependent variables	
AFEE	Natural log of total audit fees, in Japanese Yen;
Incentive variables	
COMMON	Square root of the number of client's common law FDI host countries;
DEVELOPING	Square root of the number of client's developing FDI host countries;
DISTANCE	Square root of total geographic distance, in kilometers, to each FDI host country, according to the coordinates of the geographic center of the countries;
HOM	Pearson partial correlation coefficient for each industry;
Control variables	
ASSET	Square root of total assets, in millions;
BUS_SEG	Square root of number of business reporting segments. Missing values in *BUS_SEG* are set to 0;
GEO_SEG	Square root of number of geographic reporting segments. Missing values in *GEO_SEG* are set to 0;
SUB	Square root of number of subsidiaries;
FOR_SAL	Ratio of client's foreign sales to net sales. Missing values in *FOR_SAL* are set to 0;
INV_ERC	Ratio of the client's inventories and receivables to total assets. Missing values in inventories or receivables are set to 0;
SD_INC	Standard deviation of pre-tax book income during most recent six years;
GR_SAL	Ratio of the client's change in net sales for the current fiscal year to the prior fiscal year;
LOSS	Dummy variable equal to 1 if the client reported a loss in any of the prior three years, and 0 otherwise;
ROA	Ratio of client's operating income to total assets;
FOR_INC	Dummy variable equal to 1 if the client's foreign income is positive, and 0 otherwise. Missing values in *FOR_INC* are set to 0;
CURR	Ratio of the client's current assets to current liabilities;
DEBT	Ratio of client's long-term debt to total assets;
FOR_SHA	Dummy variable equal to 1 if the majority of the client company's shares is owned by the foreigners, and 0 otherwise. Missing values in *FOR_SHA* are set to 0;
GOV_SHA	Dummy variable equal to 1 if the majority of the client company's shares is owned by the government, and 0 otherwise. Missing values in *GOV_SHA* are set to 0;
FIN_SHA	Dummy variable equal to 1 if the majority of the client company's shares is owned by the financial companies, and 0 otherwise. Missing values in *FIN_SHA* are set to 0;
PARE	Dummy variable equal to 1 if the client has a parent company, and 0 otherwise. Missing values in *PARE* are set to 0;
BIG4	Dummy variable equal to 1 if a Big 4 audit firm, and 0 otherwise;
AUD_CHA	Dummy variable equal to 1 if client changed auditor, and 0 otherwise;
OPIN	Dummy variable equal to 1 if audit opinion does not equal 1, and 0 otherwise. Missing values in *OPIN* are set to 0;
GC	Dummy variable equal to 1 for firms receiving a going concern audit report, 0 otherwise. Missing values in *GC* are set to 0;
RD	Ratio of research and development expense to net sales. Missing values in expense of research and development are set to 0;
US	Dummy variable equal to 1 if the client was listed on the NYSE or NASDAQ, and 0 otherwise;
FOREC	Dummy variable equal to 1 if the client met or just beat their last net income forecast (ratio of the difference between net income and client's last net income forecast to lagged total assets was between 0 and 0.005), and 0 otherwise. Missing values in FOREC are set to 0;
CONS	Firm-year conditional conservatism measure based on Khan and Watts (2009);
ABSDA	Absolute value of discretionary accruals derived from the model of Ball and Shivakumar (2006);
Yd	Dummy variable equal to 1 if the client falls within the specific year category, and 0 otherwise.

Table 5.1 (continued)

Variables	Definitions
Variables used in additional tests	
ABAFEE	The abnormal audit fees, as the residuals from the basic fee model, *AFEE* = *f* (*ASSET, BUS_SEG, GEO_SEG, SUB, FOR_SAL, INV_ERC, GR_SAL, LOSS, ROA, FOR_SHA, GOV_SHA, FIN_SHA, PARE, BIG4, AUD_CHA, OPIN, GC, RD, US, FOREC, CONS, ABSDA, HOM*);
AFEE_PREM	The absolute value of *ABAFEE* times a dummy variable with the value 1 if the *ABAFEE* is positive, and 0 otherwise;
AFEE_DISC	The absolute value of *ABAFEE* times a dummy variable with the value 1 if the *ABAFEE* is negative, and 1 otherwise;
PROP_COMMON	Proportion of client's FDI portfolio in common law countries;
PROP_DEVELOPING	Proportion of client's FDI portfolio in developing countries;
ABSDA2	Absolute value of discretionary accruals derived from the modified Jones model in Dechow et al. (1995);
ABSDA3	Absolute value of discretionary accruals derived from the CFO modified approach in Kasznik (1999);
Variables used in robustness checks	
CONS2	Firm-year conditional conservatism measure based on Ball and Shivakumar (2005) accrual-cash flows-based model modified by Lee et al. (2015);
CONS3	Firm-year conditional conservatism measure based on Ball and Shivakumar (2005) current and lagged earnings-changes model modified by Lee et al. (2015);
SALE	Square root of net sales, in millions;
LOSS2	Dummy variable equal to 1 if the client's income before extraordinary items is negative in current or prior year, and 0 otherwise;
GROW	Dummy variable equal to 1 if the client exhibits cash flow patterns consistent with the growth stage life cycle, and 0 otherwise. Based on the Dickinson (2011), growth stage life cycle is defined as a client with positive operating cash flows, negative investing cash flows, and positive financing cash flows;
Q	The Tobin's Q is calculated as follows: (*PRIC* **COM_SHA* +*ASSET* -*COM_EQU* -*DEF_TAX*) / *ASSET* , where *PRIC* is the closing price of the stock in the end of current fiscal year; *COM_SHA* is the common shares; *COM_EQU* is the common equity; and *DEF_TAX* is the deferred tax;
IND_SPEC	Dummy variable equal to 1 if the auditor had 25 percent or more market share in an industry in each year, and 0 otherwise. An audit firm's market share for an industry is calculated as the sum of sales of its individual clients in an industry, divided by the sum of sales for all companies in the industry;
POWER	Natural log of each client's sales divided by the sum of industry sales for all companies in the industry audited by the client's auditor;
CAS_ETR	Cash effective tax rate of the six-year sum (t to t-5) of cash taxes paid to the six-year sum of pre-tax book income. *CAS_ETR*s are reset to 1 (0) if greater (less) than 1 (0);
CUR_ETR	Current effective tax rate of the six-year sum (t to t-5) of current tax expense to the six-year sum pre-tax book income. *CUR_ETR*s are reset to 1 (0) if greater (less) than 1 (0);
TAX_AGG	Dummy variable equal to 1 if the client is tax aggressive; 0 otherwise. Tax aggressiveness is defined as a client with either a *CAS_ETR* or *CUR_ETR* in lowest quintile by year and industry membership;
POL_CHA	Dummy variable that equals 1 if the client changed in accounting Policy, and 0 otherwise. Missing values of *POL_CHA* are set to 0;
SCO_CHA	Dummy variable that equals 1 if the client changed in scope of consolidation, and 0 otherwise. Missing values of *SCO_CHA* are set to 0;
FDI	Dummy variable that equals 1 if the client engaged in FDI, and 0 otherwise. Missing values of *FDI* are set to 0;
CAP	Ratio of ownership equity to lagged total assets;
ADV	Ratio of advertisement expenditure to net sales. Missing values in advertisement expenditure are set to 0;
INTEREST	Ratio of interest expense to total debt; Missing values in interest expense are set to 0;
INTEN_SAME	Ratio of intangible asset to lagged total assets. Missing values in intangible asset are set to 0;
ROA2	Ratio of net income to lagged total assets.
COAFEE	The constant dollar audit fee, total audit fees, in Japanese Yen, scaled by the GDP deflator published by the World Bank;

5.3.2 SAMPLE SELECTION

Table 5.2 Sample selection and description

Listed companies for fiscal years 2004 to 2014 (ending in March)	22,058	*
(less) Financial companies	-1,462	
(less) Stock data unavailable	-444	**
(less) Audit fee data unavailable	-724	
(less) Financial data and forecast data unavailable	-3,883	
(less) Conservatism and discretionary accruals data unavailable	-1,282	***
Full available sample	14,263	

* Downloaded data from NEEDS Database using the criteria: accounting year-end at the end of March.

** Stock data contain the information about stock price and market value.

*** At least ten firms per year are require for each industry to be retained in the sample.

Table 5.2 presents information on the sample's selection process. For estimating the regression models, we use firm-year data from fiscal year 2004 to 2014. Information about stock, financial statements, and managers' forecast net income is obtained from the NEEDS Financial Quest database. Information about audit fees is obtained from the EOL database.[42] Most of Japanese listed companies with a fiscal year ending march 31, thus we choose these companies to avoid any possible effects from differences in year ends (Kim and Fukukawa, 2013). After restricting the sample to companies with fiscal year ended as of March 31, and excluding financial companies and missing data, the full available sample consists of 14,263 firm-years.[43]

[42] Japanese listed companies are required to disclose audit fees in annual reports according to the Financial Services Agency of Japan.

[43] Since financial companies capital structure performance indicators quite differ from those of non-financial firms, we removed all of the financial companies form the data set as several prior studies done (e.g. Felix Jr, Gramling, and Maletta, 2001; Thinggaard and Kiertzner, 2008; Shan, Troshani, and Richardson, 2015; and Asthana, Raman, and Xu, 2015). We also exclude all firm-year observations where there are fewer than ten observations in any industry in any given year. (At least ten firms per year are require for each industry to be retained in the sample).

5.4 Results

5.4.1 DESCRIPTIVE STATISTICS AND CORRELATION

Table 5.3 presents the descriptive statistics. For the dependent variable, the mean value of *AFEE* in the full sample column is 17.526. For the first incentive variable, using industry as the unit of analysis for *HOM*, the mean of *HOM* is 0 (since *HOM* is centered), the median is 0.022, the upper quartile is 0.039, and the lower quartiles is -0.079. The upper quartile is used to determine the highly homogenous industries (*HIGH_HOM*) where *HOM* > 0.039. For the second incentive variable, the mean of *COMMON* is 0.7418, the median is 1, the upper quartile is 1.414, and the lower quartiles is 0. The upper quartile is used to determine the companies investing in a higher number of common law countries (*HIGH_COMMON*) where *COMMON* > 1.414. For the third incentive variable, the mean of *DEVELOPING* is 1.222, the median is 1.414, the upper quartile is 2, and the lower quartiles is 0. The upper quartile is used to determine the companies investing in a higher number of developing countries (*HIGH_DEVELOPING*) where *DEVELOPING* > 2. For the fourth incentive variable, the mean of DISTANCE is 1.324, the median is 2.011, the upper quartile is 2.135, and the lower quartiles is 0. The upper quartile is used to determine the longer total geographic distance to FDI host countries (*LONG_DISTANCE*) where *DISTANCE* > 2.135.

Table 5.3 also compares the mean values of the variables for subsamples of *HIGH_HOM* and non *HIGH_HOM*, *HIGH_COMMON* and non *HIGH_COMMON*, *HIGH_DEVELOPING* and non *HIGH_DEVELOPING*, and *LONG_DISTANCE* and non *LONG_DISTANCE* with t-test, respectively. In general, *HIGH_HOM* companies have significantly lower audit fees. While *HIGH_COMMON*, *HIGH_DEVELOPING*, and *LONG_DISTANCE* companies have significantly higher audit fees.

Table 5.3 Descriptive statistics

	Full sample (n=14,263)					*HIGH_HOM* (n=3,446)			*MANY_COMMON* (n=2,464)			*MANY_DEVELOPING* (n=3,433)			*LONG_DISTANCE* (n=3,563)		
Variable	Mean	Std. Dev.	Quartile 1	Median	Quartile 3	0	1	t-statistic	0	1	t-statistic	0	1	t-statistic	0	1	t-statistic
AFEE	17.5257	0.8390	16.9936	17.3709	17.8409	17.5459	17.4625	5.0871 ***	17.3585	18.3268	-57.9079 ***	17.3530	18.0707	-46.9295 ***	17.3295	18.1151	-52.9616 ***
COMMON	0.7418	0.8158	0.0000	1.0000	1.4142	0.7532	0.7062	2.9434 ***	0.4693	2.0471	-127.9895 ***	0.4214	1.7529	-116.3377 ***	0.3886	1.8026	-135.5690 ***
DEVELOPING	1.2223	1.1903	0.0000	1.4142	2.0000	1.1843	1.3416	-6.7661 ***	0.8791	2.8657	-97.1241 ***	0.7005	2.8683	-148.1712 ***	0.7217	2.7255	-127.1012 ***
DISTANCE	1.3243	1.0188	0.0000	2.0111	2.1345	1.2719	1.4890	-10.9423 ***	1.1364	2.2244	-52.7046 ***	1.0469	2.1997	-66.0156 ***	1.0302	2.2076	-69.0059 ***
HOM	0.0000	0.1366	-0.0786	0.0223	0.0390	-0.0538	0.1688	-116.1548 ***	-0.0052	0.0251	-10.0682 ***	-0.0103	0.0326	-16.2052 ***	-0.0109	0.0327	-16.6314 ***
ASSET	409.3989	475.1115	171.5867	258.1240	444.0270	404.7049	424.1331	-2.0907 **	319.6345	839.2407	-54.2262 ***	324.5869	676.9531	-39.9242 ***	310.8309	705.4070	-46.0120 ***
BUS_SEG	1.8928	1.0969	2.0000	2.4495	2.6458	1.8300	2.0899	-12.1739 ***	1.8476	2.1090	-10.8023 ***	1.8684	1.9696	-4.7118 ***	1.8627	1.9832	-5.6883 ***
GEO_SEG	1.1914	1.2358	0.0000	0.0000	2.4495	1.1216	1.4105	-12.0097 ***	0.9674	2.2639	-51.5955 ***	0.8672	2.2141	-62.8877 ***	0.8294	2.2785	-70.3643 ***
SUB	4.1597	3.3488	2.2361	3.1623	4.8990	4.1082	4.3214	-3.2555 ***	3.3505	8.0346	-74.4003 ***	3.2895	6.9049	-62.1327 ***	3.1926	7.0640	-69.0334 ***
FOR_SAL	0.0953	0.2227	0.0000	0.0000	0.0607	0.1049	0.0653	9.1095 ***	0.0629	0.2509	-40.2104 ***	0.0484	0.2436	-48.2751 ***	0.0438	0.2501	-52.2598 ***
INV_ERC	0.3433	0.1603	0.2386	0.3445	0.4429	0.3538	0.3103	13.9653 ***	0.3427	0.3462	-0.9964	0.3355	0.3679	-10.3522 ***	0.3410	0.3504	-3.0413 ***
GR_SAL	0.0365	0.2400	-0.0305	0.0284	0.0910	0.0378	0.0324	1.1670	0.0344	0.0465	-2.2826 **	0.0342	0.0439	-2.0767 **	0.0340	0.0441	-2.1834 **
SD_INC	0.0235	0.0509	0.0057	0.0107	0.0247	0.0249	0.0188	6.1634 ***	0.0240	0.0208	2.9021 ***	0.0242	0.0211	3.1019 ***	0.0242	0.0213	2.9189 ***
LOSS	0.2058	0.4043	0.0000	0.0000	0.0000	0.2039	0.2115	-0.9625	0.2132	0.1700	4.8269 ***	0.2155	0.1751	5.1124 ***	0.2124	0.1858	3.4069 ***
FOR_INC	0.2611	0.4392	0.0000	0.0000	1.0000	0.2613	0.2603	0.1217	0.2051	0.5292	-34.6904 ***	0.1757	0.5304	-43.9313 ***	0.1668	0.5442	-47.8502 ***
ROA	0.0473	0.0576	0.0235	0.0420	0.0688	0.0480	0.0449	2.7536 ***	0.0454	0.0562	-8.5208 ***	0.0449	0.0548	-8.8171 ***	0.0448	0.0546	-8.8559 ***
DEBT	0.1723	0.1315	0.0714	0.1431	0.2369	0.1615	0.2063	-17.5762 ***	0.1699	0.1840	-4.8479 ***	0.1758	0.1614	5.5994 ***	0.1716	0.1744	-1.0957
CURR	1.9321	1.6012	1.1507	1.5513	2.2289	1.9577	1.8515	3.3920 ***	1.9419	1.8851	1.6025	1.9196	1.9714	-1.6501 *	1.9173	1.9766	-1.9146 *
GOV_SHA	0.0029	0.0542	0.0000	0.0000	0.0000	0.0014	0.0078	-6.0914 ***	0.0036	0.0000	2.9667 ***	0.0039	0.0000	3.6556 ***	0.0033	0.0020	1.2465
FOR_SHA	0.0389	0.1934	0.0000	0.0000	0.0000	0.0415	0.0308	2.8420 ***	0.0291	0.0860	-13.3823 ***	0.0268	0.0772	-13.3925 ***	0.0258	0.0783	-14.1354 ***
FIN_SHA	0.6351	0.4814	0.0000	1.0000	1.0000	0.6368	0.6297	0.7497	0.6684	0.4756	18.2823 ***	0.6756	0.5071	18.0710 ***	0.6777	0.5072	18.5292 ***
PARE	0.0564	0.2306	0.0000	0.0000	0.0000	0.0606	0.0429	3.9245 ***	0.0572	0.0524	0.9502	0.0561	0.0571	-0.2109	0.0586	0.0497	1.9999 **
BIG4	0.7530	0.4313	1.0000	1.0000	1.0000	0.7534	0.7519	0.1736	0.7333	0.8474	-12.0062 ***	0.7374	0.8022	-7.6888 ***	0.7370	0.8010	-7.6878 ***
AUD_CHA	0.0577	0.2332	0.0000	0.0000	0.0000	0.0561	0.0627	-1.4395	0.0602	0.0459	2.7721 ***	0.0617	0.0452	3.6209 ***	0.0592	0.0533	1.2933
OPIN	0.2513	0.4338	0.0000	0.0000	1.0000	0.2480	0.2618	-1.6166	0.2461	0.2764	-3.1500 ***	0.2470	0.2651	-2.1276 **	0.2448	0.2711	-3.1418 ***
GC	0.0074	0.0855	0.0000	0.0000	0.0000	0.0081	0.0049	1.9150 *	0.0084	0.0024	3.1462 ***	0.0090	0.0020	4.1890 ***	0.0088	0.0031	3.4472 ***
RD	0.0193	0.0551	0.0002	0.0075	0.0260	0.0198	0.0179	1.7979 *	0.0164	0.0334	-14.0640 ***	0.0163	0.0290	-11.8676 ***	0.0152	0.0317	-15.5730 ***
FOREC	0.4750	0.4994	0.0000	0.0000	1.0000	0.4743	0.4771	-0.2793	0.4894	0.4058	7.5732 ***	0.4986	0.4005	10.0636 ***	0.4983	0.4050	9.6927 ***
CONS	0.0104	0.0298	-0.0037	0.0098	0.0236	0.0101	0.0113	-2.1467 **	0.0083	0.0205	-18.6826 ***	0.0081	0.0176	-16.4644 ***	0.0079	0.0179	-17.6518 ***
ABSDA	0.0045	0.0530	0.0002	0.0005	0.0014	0.0044	0.0049	-0.4818	0.0050	0.0020	2.5574 **	0.0052	0.0024	2.6856 ***	0.0052	0.0023	2.8014 ***
US	0.0107	0.1030	0.0000	0.0000	0.0000	0.0133	0.0026	5.3152 ***	0.0027	0.0491	-20.6333 ***	0.0036	0.0332	-14.7843 ***	0.0027	0.0348	-16.2535 ***

Table 5.4 Distribution by year and by industry

Penal A: Distribution by year

			HIGH_HOM (n=3,446)				*HIGH_COMMON* (n=2,464)				*HIGH_DEVELOPING* (n=3,433)				*LONG_DISTANCE* (n=3,563)			
			0		1		0		1		0		1		0		1	
Year	Freq.	Percent	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean
2004	1,177	8.25	878	-0.0474	299	0.1671	996	0.4815	181	2.0415	926	0.6929	251	2.8165	907	1.0667	270	2.2051
2005	1,175	8.24	877	-0.0475	298	0.1671	987	0.4810	188	2.0396	908	0.6953	267	2.8169	899	1.0718	276	2.2066
2006	1,204	8.44	900	-0.0493	304	0.1680	1,009	0.4824	195	2.0463	927	0.7058	277	2.8360	917	1.0687	287	2.2075
2007	1,233	8.64	924	-0.0501	309	0.1680	1,031	0.4799	202	2.0567	945	0.7108	288	2.8454	932	1.0603	301	2.2073
2008	1,257	8.81	946	-0.0504	311	0.1696	1,046	0.4761	211	2.0593	958	0.7025	299	2.8580	943	1.0361	314	2.2072
2009	1,291	9.05	978	-0.0524	313	0.1705	1,077	0.4742	214	2.0622	984	0.6976	307	2.8677	971	1.0314	320	2.2076
2010	1,332	9.34	1,015	-0.0543	317	0.1703	1,100	0.4633	232	2.0503	1,011	0.6999	321	2.8730	1,001	1.0306	331	2.2084
2011	1,372	9.62	1,051	-0.0565	321	0.1694	1,123	0.4602	249	2.0403	1,034	0.7034	338	2.8787	1,022	1.0225	350	2.2079
2012	1,396	9.79	1,071	-0.0583	325	0.1688	1,143	0.4619	253	2.0423	1,044	0.7006	352	2.8908	1,032	1.0026	364	2.2074
2013	1,406	9.86	1,082	-0.0598	324	0.1684	1,145	0.4586	261	2.0436	1,047	0.7042	359	2.9132	1,035	0.9888	371	2.2078
2014	1,420	9.96	1,095	-0.0613	325	0.1691	1,142	0.4492	278	2.0391	1,046	0.6928	374	2.9127	1,041	0.9713	379	2.2098
Total	14,263	100.00	10,817		3,446		11,799		2,464		10,830		3,433		10,700		3,563	
CAGR from 2004 to 2014			2.2%		0.8%		1.4%		4.4%		1.2%		4.1%		1.4%		3.4%	

Penal B: Distribution by industry

			HIGH_HOM (n=3,446)				*HIGH_COMMON* (n=2,464)				*HIGH_DEVELOPING* (n=3,433)				*LONG_DISTANCE* (n=3,563)			
			0		1		0		1		0		1		0		1	
Industry	Freq.	Percent	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean
Construction	1,057	7.41	1,057	-0.0786	0	-	992	0.2358	65	1.8763	915	0.5686	142	2.5945	974	0.8558	83	2.1888
Foods	605	4.24	605	0.0390	0	-	549	0.3599	56	1.9005	547	0.5517	58	3.1260	532	0.7973	73	2.2099
Textile & Apparels	357	2.50	0	-	357	0.0564	313	0.2840	44	1.7564	273	0.8955	84	2.7172	285	1.3143	72	2.1927
Pulp & Paper	145	1.02	0	-	145	0.1895	134	0.5389	11	2.0000	134	1.1338	11	2.6458	112	1.5899	33	2.1550
Chemicals	1,274	8.93	0	-	1,274	0.1179	1,099	0.6258	175	1.9789	874	0.9766	400	2.7229	927	1.4514	347	2.1931
Pharmaceutical	255	1.79	255	-0.1592	0	-	218	0.4514	37	2.1859	216	0.4401	39	2.8300	194	0.6792	61	2.2202
Rubber Products	117	0.82	0	-	117	0.1696	98	0.7109	19	1.7321	76	1.0084	41	2.7598	75	1.4322	42	2.1949
Glass & Ceramics Products	324	2.27	0	-	324	0.0738	254	0.4558	70	1.8887	259	0.8664	65	2.8218	239	1.1630	85	2.1891
Iron & Steel	391	2.74	0	-	391	0.3511	371	0.2438	20	1.9448	340	0.5544	51	2.5616	358	0.9125	33	2.1787
Nonferrous Metals	239	1.68	0	-	239	0.3061	180	0.5401	59	1.8683	155	0.7839	84	2.8202	159	1.2874	80	2.2028
Metal Products	434	3.04	434	0.0336	0	-	404	0.3812	30	1.7321	389	0.7515	45	2.5703	388	0.9911	46	2.1762
Machinery	1,282	8.99	1,282	0.0223	0	-	912	0.8043	370	2.0959	782	1.0950	500	2.7926	731	1.5248	551	2.2099
Electric Appliances	1,586	11.12	1,586	0.0305	0	-	1,003	0.8071	583	2.1131	836	1.1189	750	2.9131	778	1.4942	808	2.2123
Transport Equipment	781	5.48	781	0.0180	0	-	465	0.9279	316	2.0656	412	1.3014	369	2.8974	337	1.6748	444	2.2194
Precision Instruments	262	1.84	262	-0.0412	0	-	176	0.7725	86	2.2094	177	1.1230	85	3.0549	169	1.6417	93	2.2524
Other Products	391	2.74	391	-0.0588	0	-	312	0.3720	79	1.8886	313	0.7757	78	2.6354	288	1.0374	103	2.1900
Electric Power & Gas	194	1.36	0	-	194	0.4336	173	0.3403	21	1.8566	189	0.4801	5	2.2361	164	0.7551	30	2.1642
Land Transportation	509	3.57	509	-0.1500	0	-	469	0.1730	40	1.8593	440	0.1433	69	2.8343	444	0.2416	65	2.1865
Marine Transportation	106	0.74	0	-	106	0.2433	69	0.6058	37	2.4467	73	0.6886	33	4.0434	73	1.1345	33	2.3128
Warehousing and Harbor transportation	299	2.10	0	-	299	0.0662	266	0.5304	33	2.4438	209	0.9429	90	2.9875	207	1.2042	92	2.2048
Information & Communication	751	5.27	751	-0.2280	0	-	693	0.3639	58	1.8431	728	0.4359	23	2.9085	711	0.8843	40	2.1812
Wholesale Trade	1,490	10.45	1,490	-0.0282	0	-	1,287	0.4570	203	2.1320	1,114	0.6184	376	3.1319	1,180	0.9765	310	2.2153
Retail Trade	530	3.72	530	-0.2156	0	-	530	0.1225	0	-	523	0.1779	7	2.2666	526	0.3401	4	2.1447
Real Estate	257	1.80	257	-0.0873	0	-	233	0.2534	24	1.7767	248	0.1561	9	2.9346	248	0.5528	9	2.1902
Services	627	4.40	627	-0.2018	0	-	599	0.1962	28	2.0230	608	0.3415	19	2.5935	601	0.5936	26	2.1758
Total	14,263	100.02	10,817		3,446		11,799		2,464		10,830		3,433		10,700		3,563	

Table 5.4, Panel A presents the annual descriptive statistics of the sample over 11 years. Each year covered in the sample represents around 8 percent to 10 percent of the overall sample. Based on this roughly distribution, annual concentration of the sample does not appear to be a problem. Panel A also presents the information by subsamples. From 2004 to 2014, the compound average growth rate (CAGR) of *HIGH_HOM* companies is 0.8 percent lower than the counterpart, suggesting that as time goes on, the growth of non *HIGH_HOM* companies is faster than *HIGH_HOM*. While, the CAGR of *HIGH_COMMON* companies, *HIGH_DEVELOPING* companies, and *LONG_DISTANCE* companies, is 4.4 percent, 4.1 percent, and 3.4 percent higher than the counterpart, respectively. This suggests that as time goes on, the growth of *HIGM_COMMON* companies, *HIGH_DEVELOPING* companies, and *LONG_DISTANCE* companies, is faster than their counterparts, respectively.

Table 5.4, Panel B presents an industry breakdown, by the TSE New Industry Code, of the sample.[44] Electric Appliances is the industry with the highest proportion (11.1 percent) of the full sample, followed by Wholesale Trade (10.5 percent), and Machinery (9.0 percent). To some extent, Panel B indicates that subsamples of *HIGH_COMMON*, *HIGH_DEVELOPING*, and *LONG_DISTANCE* roughly reflects the industry representation in the full sample population. Panel B also presents the *HOM* value by industry. Electric Power & Gas is the industry with the highest value of *HOM* (0.434), followed by Iron & Steel (0.351), and Nonferrous Metals (0.306). On the other hand, Information & Communication is the industry with the lowest value of *HOM* (-0.228), followed by Retail Trade (-0.216), and Services (-0.202).

[44] Based on the sample selection process, eventually, we drop 8 industries from whole 33 types of TSE New Industry classification. We list these 8 industries as follows: Fishery, Agriculture & Forestry; Mining; Oil & Coal Products; Air Transportation; Banks; Securities & Commodity Futures; Insurance; and Other Financing Business.

Table 5.5 Correlation coefficients between variables

Panel A: Correlation variables *AFEE* to *ROA*

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	*AFEE*	1	0.411	0.375	0.417	-0.027	0.699	0.273	0.204	0.624	0.060	-0.082	-0.063	0.021	-0.003	0.034	0.014
2.	*COMMON*	0.452	1	-	-	0.168	0.473	0.087	0.622	0.594	0.474	0.058	0.098	0.110	-0.042	0.446	0.158
3.	*DEVELOPING*	0.425	-	1	-	0.252	0.423	0.064	0.605	0.567	0.471	0.145	0.098	0.086	-0.045	0.446	0.138
4.	*DISTANCE*	0.288	-	-	1	0.237	0.477	0.083	0.654	0.610	0.501	0.101	0.099	0.111	-0.042	0.477	0.158
5.	*HOM*	0.011	0.151	0.212	0.225	1	0.044	0.026	0.306	0.110	0.151	0.080	0.017	0.031	0.048	0.159	-0.077
6.	*ASSET*	0.740	0.417	0.379	0.237	0.103	1	0.275	0.232	0.742	0.159	-0.124	0.079	-0.188	-0.119	0.143	0.095
7.	*BUS_SEG*	0.248	0.053	0.045	0.016	0.045	0.214	1	0.002	0.324	-0.141	-0.101	-0.002	-0.027	0.009	-0.126	-0.084
8.	*GEO_SEG*	0.186	0.603	0.597	0.569	0.297	0.131	-0.017	1	0.359	0.522	0.160	0.079	0.234	0.041	0.505	0.097
9.	*SUB*	0.730	0.557	0.533	0.349	0.099	0.798	0.251	0.277	1	0.291	-0.101	0.070	-0.032	-0.062	0.269	0.081
10.	*FOR_SAL*	0.108	0.422	0.413	0.332	0.087	0.103	-0.226	0.415	0.207	1	0.089	0.011	0.142	0.042	0.968	0.122
11.	*INV_ERC*	-0.101	0.068	0.149	0.169	0.094	-0.193	-0.087	0.179	-0.117	0.115	1	0.063	0.060	0.015	0.079	-0.032
12.	*GR_SAL*	-0.035	0.028	0.022	0.021	-0.017	0.008	0.003	0.012	0.012	-0.001	0.029	1	-0.044	-0.237	0.003	0.379
13.	*SD_INC*	-0.041	-0.027	-0.049	-0.045	-0.027	-0.094	0.004	0.027	-0.073	0.026	0.001	0	1.000	0.389	0.124	-0.108
14.	*LOSS*	0.004	-0.040	-0.045	-0.034	0.060	-0.043	0.004	0.038	-0.029	0.041	0.007	-0.089	0	1.000	0.042	-0.496
15.	*FOR_INC*	0.048	0.440	0.433	0.411	0.139	0.088	-0.195	0.523	0.198	0.701	0.088	-0.020	-0.004	0	1.000	0.114
16.	*ROA*	0.007	0.096	0.080	0.090	-0.071	0.021	-0.067	0.055	0.015	0.062	-0.035	0.187	-0.290	-0.376	0	1.000
17.	*DEBT*	0.229	-0.003	-0.060	-0.088	0.108	0.339	0.239	-0.116	0.275	-0.090	-0.397	-0.039	0.011	0.125	-0.092	0
18.	*CURR*	-0.079	0.024	0.017	0.028	-0.001	-0.112	-0.137	0.105	-0.125	-0.001	-0.061	-0.009	0.141	-0.014	0.053	0.056
19.	*GOV_SHA*	0.097	0.000	-0.027	0.001	0.079	0.230	0.028	-0.052	0.103	-0.023	-0.091	-0.004	-0.018	0.011	-0.032	-0.012
20.	*FOR_SHA*	0.057	0.117	0.126	0.089	0.012	0.073	0.003	0.096	0.094	0.065	-0.033	0.003	0.010	-0.008	0.059	0.010
21.	*FIN_SHA*	-0.176	-0.153	-0.143	-0.090	-0.016	-0.202	-0.047	-0.111	-0.217	-0.067	0.052	-0.035	0.005	0.008	-0.106	-0.047
22.	*PARE*	0.048	0.003	0.014	0.016	-0.031	-0.023	-0.023	0.014	-0.044	0.005	0.069	-0.011	-0.006	-0.022	-0.038	0.015
23.	*BIG4*	0.264	0.101	0.103	0.090	-0.032	0.134	0.050	0.051	0.138	0.033	-0.019	-0.019	-0.107	-0.058	0.016	0.070
24.	*AUD_CHA*	-0.094	-0.027	-0.033	-0.027	0.023	-0.035	-0.010	0.003	-0.034	0.035	0.022	0.011	0.064	0.023	0.048	-0.021
25.	*OPIN*	0.005	0.016	0.012	-0.001	0.021	0.097	0.054	0.018	0.094	0.064	-0.042	0.006	0.081	0.108	0.093	-0.061
26.	*GC*	-0.039	-0.039	-0.052	-0.049	-0.009	-0.029	-0.004	-0.018	-0.030	0.020	-0.021	-0.028	0.277	0.159	-0.005	-0.236
27.	*RD*	0.070	0.158	0.118	0.116	0.008	0.055	-0.064	0.189	0.058	0.089	-0.039	-0.031	0.028	0.039	0.109	-0.019
28.	*FOREC*	0.008	-0.089	-0.089	-0.081	-0.025	-0.020	0.038	-0.102	-0.047	-0.097	0.018	-0.042	-0.052	-0.020	-0.099	-0.084
29.	*CONS*	0.312	0.163	0.155	0.111	0.052	0.231	0.059	0.075	0.213	-0.018	-0.050	-0.040	-0.043	0.003	-0.044	-0.018
30.	*ABSDA*	-0.034	-0.026	-0.046	-0.034	-0.037	-0.060	-0.023	0.020	-0.062	0.062	0.032	0.026	0.443	0.200	0.050	-0.340
31.	*US*	0.334	0.172	0.147	0.093	-0.031	0.406	0.068	0.053	0.368	0.089	-0.074	-0.002	-0.002	-0.013	0.067	0.019

Table 5.5 (continued)

Panel B: Correlation variables *DEBT* to *US*

		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1.	*AFEE*	0.179	-0.073	0.060	0.045	-0.133	0.080	0.303	-0.113	-0.036	-0.048	0.155	0.026	0.350	-0.037	0.169
2.	*COMMON*	0.018	0.105	0.003	0.112	-0.147	0.006	0.098	-0.026	0.010	-0.040	0.420	-0.089	0.142	0.007	0.153
3.	*DEVELOPING*	-0.046	0.110	-0.026	0.119	-0.128	0.020	0.099	-0.032	0.004	-0.053	0.395	-0.090	0.133	-0.013	0.119
4.	*DISTANCE*	-0.011	0.109	-0.004	0.118	-0.141	0.011	0.104	-0.028	0.013	-0.047	0.450	-0.096	0.142	-0.002	0.140
5.	*HOM*	0.080	0.021	0.029	0.016	-0.026	-0.048	-0.040	0.021	0.006	-0.010	0.378	-0.032	0.025	-0.047	-0.022
6.	*ASSET*	0.218	-0.142	0.085	0.064	-0.160	0.000	0.156	-0.044	0.077	-0.088	0.159	-0.013	0.234	-0.114	0.150
7.	*BUS_SEG*	0.293	-0.207	0.019	-0.001	-0.077	-0.059	0.056	-0.004	0.081	-0.010	-0.087	0.021	0.047	-0.067	0.085
8.	*GEO_SEG*	-0.057	0.194	-0.049	0.095	-0.111	0.012	0.051	0.003	0.021	-0.014	0.546	-0.102	0.074	0.054	0.063
9.	*SUB*	0.245	-0.143	0.056	0.075	-0.172	-0.042	0.150	-0.033	0.073	-0.051	0.210	-0.051	0.177	-0.097	0.149
10.	*FOR_SAL*	-0.079	0.087	-0.032	0.070	-0.102	-0.032	0.019	0.049	0.090	-0.001	0.325	-0.107	-0.077	0.092	0.090
11.	*INV_ERC*	-0.286	0.077	-0.083	-0.040	0.050	0.060	-0.025	0.021	-0.037	-0.016	0.092	0.022	-0.049	0.062	-0.081
12.	*GR_SAL*	-0.055	0.008	-0.010	0.009	-0.051	-0.029	-0.005	0.022	-0.012	-0.060	0.003	-0.064	-0.053	-0.032	-0.002
13.	*SD_INC*	0.044	0.063	-0.054	0.001	-0.017	-0.005	-0.024	0.031	0.062	0.126	0.202	-0.088	0.007	0.229	0.015
14.	*LOSS*	0.136	-0.118	0.011	-0.008	0.008	-0.022	-0.058	0.023	0.108	0.159	0.040	-0.020	0.001	0.185	-0.013
15.	*FOR_INC*	-0.071	0.092	-0.032	0.059	-0.106	-0.038	0.016	0.048	0.093	-0.005	0.312	-0.099	-0.088	0.086	0.067
16.	*ROA*	-0.245	0.236	-0.014	0.042	-0.078	0.019	0.068	0.006	-0.059	-0.123	0.097	-0.134	-0.003	0.015	0.027
17.	*DEBT*	1	-0.521	0.082	-0.027	-0.056	-0.082	0.000	-0.016	0.112	0.036	-0.113	0.042	0.002	-0.075	0.024
18.	*CURR*	-0.344	1	-0.071	0.073	-0.028	0.052	-0.002	-0.006	-0.110	-0.050	0.331	-0.054	0.071	0.072	0.011
19.	*GOV_SHA*	0.138	-0.038	1	-0.011	-0.072	-0.013	0.031	-0.013	0.004	0.010	0.000	-0.002	0.023	0.013	0.133
20.	*FOR_SHA*	-0.030	0.048	-0.011	1	-0.265	-0.049	0.001	-0.002	0.015	0.000	0.074	-0.032	0.011	-0.003	0.078
21.	*FIN_SHA*	-0.060	-0.019	-0.072	-0.265	1	0.179	-0.024	0.013	-0.040	0.004	-0.113	0.033	-0.031	-0.012	-0.079
22.	*PARE*	-0.071	0.027	-0.013	-0.049	0.179	1	0.081	-0.020	-0.036	-0.021	0.001	0.018	0.054	0.038	-0.002
23.	*BIG4*	0.020	-0.023	0.031	0.001	-0.024	0.081	1	-0.123	-0.100	-0.059	0.020	0.023	0.103	0.002	0.022
24.	*AUD_CHA*	-0.023	-0.005	-0.013	-0.002	0.013	-0.020	-0.123	1	0.087	0.053	-0.004	-0.018	-0.070	0.035	-0.005
25.	*OPIN*	0.110	-0.053	0.004	0.015	-0.040	-0.036	-0.100	0.087	1	0.145	-0.003	-0.082	-0.126	0.049	0.053
26.	*GC*	0.038	-0.008	0.010	0.000	0.004	-0.021	-0.059	0.053	0.145	1	-0.014	-0.013	-0.045	0.084	-0.009
27.	*RD*	-0.093	0.389	-0.009	0.032	-0.063	0.003	0.037	-0.010	-0.010	-0.008	1	-0.088	0.080	0.060	0.106
28.	*FOREC*	0.056	-0.032	-0.002	-0.032	0.033	0.018	0.023	-0.018	-0.082	-0.013	-0.045	1	0.078	-0.052	-0.050
29.	*CONS*	0.060	0.005	0.043	0.014	-0.047	0.025	0.092	-0.065	-0.071	-0.044	0.032	0.053	1	-0.019	0.033
30.	*ABSDA*	-0.041	0.082	0.000	0.011	-0.016	0.025	-0.026	0.056	0.066	0.208	0.096	-0.045	-0.035	1	0.042
31.	*US*	0.019	0.011	0.133	0.078	-0.079	-0.002	0.022	-0.005	0.053	-0.009	0.057	-0.050	0.054	0.031	1

Correlations are based on 14,263 firm-year observations.

Pearson (Spearman) correlations in the lower (Upper) diagonal.

Table 5.5 presents the univariate Pearson (upper) and Spearman (lower) correlations. Consistent with H1, H2, and H3, *AFEE* is positively associated with *COMMON*, *DEVELOPING*, and *DISTANCE* (both Pearson and Spearman correlations). While the direction of Pearson and Spearman correlations between *AFEE* and *HOM* are mixed. However, these univariate correlations do not control for other factors of audit fees. Therefore, it is necessary to use multivariate regression for controlling the potential factors.

In general, the results of the correlation test show weak associations between variables. Given that some correlations are exceeding 0.5, we check for multicollinearity by calculating the variance inflation factor (VIF). VIF shows how the variance of an estimator is inflated by the existence of multicollinearity (Gujarati and Porter 2010). We find that all values are less than 10, and the average VIF of the independent variables (without intercept) is 2.757,

2.778, and 2.772 for model 1, model 2, and model 3, respectively. These results suggest that multicollinearity does not appear to be a problem.

5.4.2 MULTIVARIATE RESULTS

Table 5.6 The characteristics of FDI and audit fees analysis

	Dependent variable as *AFEE*					
	Expected	Model 1		Model 2		Model 3	
Dependent variable	Sign	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Test variables							
COMMON (H1)	+	0.0788	11.97 ***				
DEVELOPING (H2)	+			0.0463	10.37 ***		
DISTANCE (H3)	+					0.0475	10.56 ***
HOM×COMMON (H4a)	-	-0.2999	-7.87 ***				
HOM×DEVELOPING (H4b)	-			-0.1868	-7.02 ***		
HOM×DISTANCE (H4c)	-					-0.2114	-8.14 ***
Control variables							
HOM	-	-0.2561	-7.67 ***	-0.2856	-8.19 ***	-0.2202	-5.70 ***
ASSET	+	0.0008	57.63 ***	0.0008	57.84 ***	0.0008	58.82 ***
BUS_SEG	+	0.0424	11.95 ***	0.0428	12.04 ***	0.0432	12.17 ***
GEO_SEG	+	0.0027	0.65	0.0073	1.78 *	0.0078	1.92 *
SUB	+	0.0722	35.96 ***	0.0724	35.90 ***	0.0746	38.64 ***
FOR_SAL	+	0.0987	4.27 ***	0.1037	4.48 ***	0.1298	5.65 ***
INV_ERC	+	0.2210	8.59 ***	0.1958	7.53 ***	0.1963	7.58 ***
GR_SAL	-	-0.0603	-3.89 ***	-0.0587	-3.78 ***	-0.0588	-3.80 ***
SD_INC	+	0.5068	6.14 ***	0.5403	6.54 ***	0.5311	6.43 ***
LOSS	+	0.0226	2.29 **	0.0228	2.30 **	0.0211	2.14 **
FOR_INC	+	-0.0534	-4.08 ***	-0.0508	-3.87 ***	-0.0559	-4.25 ***
ROA	-	0.3369	4.54 ***	0.3759	5.06 ***	0.3396	4.57 ***
DEBT	+	0.0411	1.16	0.0511	1.44	0.0449	1.27
CURR	-	-0.0091	-3.42 ***	-0.0094	-3.52 ***	-0.0093	-3.46 ***
GOV_SHA	+	-0.6817	-10.00 ***	-0.6331	-9.28 ***	-0.7166	-10.51 ***
FOR_SHA	+	-0.0664	-3.48 ***	-0.0681	-3.57 ***	-0.0642	-3.37 ***
FIN_SHA	+	-0.0551	-6.94 ***	-0.0540	-6.80 ***	-0.0556	-7.01 ***
PARE	-	0.0765	4.84 ***	0.0758	4.79 ***	0.0760	4.81 ***
BIG4	+	0.2289	26.79 ***	0.2275	26.58 ***	0.2253	26.36 ***
AUD_CHA	-	-0.0183	-1.15	-0.0189	-1.18	-0.0182	-1.14
OPIN	+	0.0344	3.90 ***	0.0313	3.54 ***	0.0319	3.61 ***
GC	+	-0.0451	-1.02	-0.0371	-0.84	-0.0408	-0.92
RD	+	0.2006	2.81 ***	0.2556	3.58 ***	0.2420	3.39 ***
FOREC	+	-0.0066	-0.89	-0.0062	-0.83	-0.0068	-0.91
CONS	-	1.6688	11.90 ***	1.6968	12.08 ***	1.7022	12.14 ***
ABSDA	+	-0.1737	-1.24	-0.1487	-1.06	-0.1794	-1.28
US	+	0.2504	6.49 ***	0.2723	7.07 ***	0.2482	6.45 ***
Intercept		16.1103	687.61 ***	16.1092	685.72 ***	16.0914	683.59 ***
Yd		Yes		Yes		Yes	
Adj R-squared		0.7501		0.7492		0.7498	
No. Obs.		14,263		14,263		14,263	

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

Table 5.6, presents the multivariate results from model (1), model (2), and model (3). The coefficient on *COMMON* is positive and significant (0.079, p-value < 0.01) in the first

columns. This result supports H1, which predicts that audits of companies investing in a higher number of common law countries will exhibit higher audit fees. The coefficient on *DEVELOPING* is positive and significant (0.046, p-value < 0.01) in the second columns. This result supports H2, which predicts that audits of companies investing in a higher number of developing countries will exhibit higher audit fees. The coefficient on *DISTANCE* is positive and significant (0.047, p-value < 0.01) in the third columns. This result supports H3, which predicts that audits of companies with longer geographic distance to FDI host countries will exhibit higher audit fees.

The coefficient on *HOM×COMMON* is negative and significant (-0.300, p-value < 0.01) in the first columns, the coefficient on *HOM×DEVELOPING* is negative and significant (-0.187, p-value < 0.01) in the second columns, and the coefficient on *HOM×DISTANCE* is negative and significant (-0.211, p-value < 0.01) in the third columns. These results support H4a, H4b, and H4c, which predicts that the homogeneity of industries in which a firm competes negatively moderates the relationship between the audit fees and the number of common law countries, the number of developing countries, and the total geographic distance to FDI host countries, respectively.

5.5 Additional Tests

Table 5.7 Additional tests

Panel A: Audit fees premiums and discounts

		Dependent variable as *AFEE_PREM* (n=14,263)						Dependent variable as *AFEE_DIS* C (n=14,263)					
	Expected	Model 1 (adjR2=0.1835)		Model 2 (adjR2=0.1803)		Model 3 (adjR2=0.1815)		Model 1 (adjR2=0.2256)		Model 2 (adjR2=0.2253)		Model 3 (adjR2=0.2270)	
Dependent variable	Sign	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Test variables													
COMMON	+	0.0335	8.49 ***					-0.0453	-10.77 ***				
DEVELOPING	+			0.0173	6.45 ***					-0.0290	-10.18 ***		
DISTANCE	+					0.0154	5.70 ***					-0.0321	-11.18 ***
HOM×COMMON	-	-0.1543	-6.75 ***					0.1457	5.99 ***				
HOM×DEVELOPING	-			-0.0722	-4.52 ***					0.1146	6.76 ***		
HOM×DISTANCE	-					-0.1042	-6.67 ***					0.1073	6.47 ***
HOM	-	0.0485	2.420 **	0.0186	0.89	0.0678	2.92 ***	-0.1593	-7.47 ***	-0.1598	-7.18 ***	-0.1759	-7.14 ***

Panel B: FDI portfolio and audit fees

		Dependent variable as *AFEE* (n=14,263)			
	Expected	Model 1 (adjR2=0.7472)		Model 2 (adjR2=0.7467)	
Dependent variable	Sign	Coef.	t-stat	Coef.	t-stat
Test variables					
PROP_COMMON	+	0.1025	6.09 ***		
PROP_DEVELOPING	+			0.0457	4.46 ***
HOM×PROP_COMMON	-	-0.5716	-5.61 ***		
HOM×PROP_DEVELOPING	-			-0.3779	-5.63 ***
HOM	-	-0.3159	-9.88 ***	0.3038	-8.52 ***

Panel C: Litigation risk of U.S. market listed Japanese firm

		Dependent variable as *AFEE* (n=14,263)					
	Expected	Model 1 (adjR2=0.7557)		Model 2 (adjR2=0.7520)		Model 3 (adjR2=0.7527)	
Dependent variable	Sign	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Test variables							
COMMON	+	0.0732	11.26 ***				
DEVELOPING	+			0.0489	11.01 ***		
DISTANCE	+					0.0431	9.62 ***
US×COMMON	-	-1.2195	-19.18 ***				
US×DEVELOPING	-			-0.3728	-14.24 ***		
US×DISTANCE	-					-5.4630	-14.43 ***
US	+	2.7422	20.26 ***	1.3441	15.92 ***	12.4280	14.71 ***

Panel D: Earnings management risk

		Dependent variable as *AFEE* (with *ABSDA*) (n=14,263)						Dependent variable as AFEE (with ABSDA2) (n=14,263)						Dependent variable as AFEE (with ABSDA2) (n=14,263)					
	Expected	Model 1 (adjR2=0.7498)		Model 2 (adjR2=0.7487)		Model 3 (adjR2=0.7492)		Model 1 (adjR2=0.7499)		Model 2 (adjR2=0.7487)		Model 3 (adjR2=0.7494)		Model 1 (adjR2=0.7499)		Model 2 (adjR2=0.7488)		Model 3 (adjR2=0.7493)	
Dependent variable	Sign	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Test variables																			
COMMON	+	0.0603	7.95 ***					0.0625	8.18 ***					0.0567	7.28 ***				
DEVELOPING	+			0.0384	7.58 ***					0.0401	7.82 ***					0.0364	6.94 ***		
DISTANCE	+					0.0410	7.80 ***					0.0421	8.02 ***					0.0414	7.66 ***
ABSDA×COMMON	-	0.8980	4.92 ***					0.4781	4.11 ***					0.8433	5.23 ***				
ABSDA×DEVELOPING	-			0.4129	3.34 ***					0.1752	2.30 ***					0.3768	3.51 ***		
ABSDA×DISTANCE	-					0.3102	2.43 **					0.1454	1.86 *					0.2160	1.99 **
ABSDA	+	-0.5615	-3.50 ***	-0.4417	-2.67 ***	-0.4345	-2.48 **	-0.5247	-5.27 ***	-0.4332	-4.18 ***	-0.4309	-3.90 ***	-0.6818	-5.06 ***	-0.5864	-4.15 ***	-0.5009	-3.34 ***

*,**,*** Indicate significance at the 0.10, 0.05 and 0.01 level.

5.5.1 AUDIT FEES PREMIUMS AND DISCOUNTS

Recent research has also examined the implications of abnormal audit fees (Eshleman and Guo, 2014; Blankley, Hurtt, and MacGregor, 2012; and Cassell et al., 2012). Abnormal audit fees (*ABAFEE*) are the residuals from the basic fee model, *AFEE* = f (*ASSET*, *BUS_SEG*, *GEO_SEG*, *SUB*, *FOR_SAL*, *INV_ERC*, *GR_SAL*, *LOSS*, *ROA*, *FOR_SHA*, *GOV_SHA*, *FIN_SHA*, *PARE*, *BIG4*, *AUD_CHA*, *OPIN*, *GC*, *RD*, *US*, *FOREC*, *CONS*, *ABSDA*, *HOM*). After calculating the abnormal audit fees (*ABAFEE*), we use the positive residuals to indicate fee premiums (*AFEE_PREM*) and negative residuals to indicate fee discounts (*AFEE_DISC*) (Cairney and Stewart, 2015; Asthana and Boone, 2012; Choi, Kim, and Zang, 2010).

The first column of Panel A of Table 5.7, reports coefficient estimates for each model with *AFEE_PREM* as the dependent variable. The variable of *AFEE_PREM* is defined in Table 5.1. The coefficients on *COMMON*, *DEVELOPING*, and *DISTANCE* are positive and significant (0.034, p-value < 0.01; 0.017, p-value < 0.01; and 0.015, p-value < 0.01). In addition, the coefficients on *HOM*×*COMMON*, *HOM*×*DEVELOPING*, and *HOM*×*DISTANCE* are negative and significant (-0.154, p-value < 0.01; -0.072, p-value < 0.01; and -0.104, p-value < 0.01). These results prove that audits of companies investing in a greater number of common law countries, developing countries will exhibit higher audit fees premiums. Total geographic distance to host countries also increase audit fees premiums. Additionally, the homogeneity of industries in which a firm competes negatively moderates these relationships, respectively.

The second column of Panel A of Table 5.7, reports coefficient estimates for each model with *AFEE_DISC* as the dependent variable. The variable of *AFEE_DISC* is defined in Table 5.1. The coefficients on *COMMON*, *DEVELOPING*, and *DISTANCE* are negative and significant (-0.045 p-value < 0.01; -0.029, p-value < 0.01; and -0.032, p-value < 0.01), In addition, the coefficients on *HOM*×*COMMON*, *HOM*×*DEVELOPING*, and *HOM*×*DISTANCE* are negative and significant (0.146, p-value < 0.01; 0.115, p-value < 0.01; and 0.107, p-value < 0.01). These results prove that audits of companies investing in a greater number of common law countries, developing countries will exhibit lower

audit fees discounts. Total geographic distance to host countries also decrease audit fees discounts. Additionally, the homogeneity of industries in which a firm competes negatively moderates these relationships, respectively.

5.5.2 FDI PORTFOLIO AND AUDIT FEES

To enhance the understanding of the effects of the portfolio of FDI on audit fees, we extend the analyses by performing alternative measure of the incentive variables. We re-estimate the regression in Table 5.6 using a percentage measure of clients' FDI portfolio in common law countries (*PROP_COMMON*), and developing countries (*PROP_DEVELOPING*) instead of *COMMON*, and *DEVELOPING*, respectively. The variable of *PROP_COMMON* and *PROP_DEVELOPING* is defined in Table 5.1.

Panel B of Table 5.7, shows the regression results about the relationship between specific FDI portfolio (i.e. *PROR_COMMON*, and *PROP_DEVELOPING*) and audit fees (*AFEE*). The coefficient on *PROP_COMMON*, and *PROP_DEVELOPING* is positive and significant (0.103, p-value < 0.01, and 0.046, p-value < 0.01), and on *HOM×PROP_COMMON* and *HOM×PROP_DEVELOPING* is negative and significant (-0.572, p-value < 0.01, and -0.378, p-value < 0.01), respectively. These results predict that the audits of companies with a higher proportion of common law (developing) countries in its FDI portfolio will exhibit higher audit fees, and the homogeneity of industries in which a client competes negatively moderates this relationship.

5.5.3 LITIGATION RISK OF CROSS-LISTED ON U.S. MARKETS

Seetharaman, Gul, and Lynn (2002) provide the evidence that UK auditors charge higher fees when their clients cross-listed on U.S. markets. Several studies also discuss this factor in their audit fees research (Choi et al., 2008; Venkataraman, weber, and Willenborg, 2008; Lyon and Maher, 2005; Choi et al., 2009). In this section, we further discuss the effect of cross-listed on U.S. markets on the results.

Given both cross-listed on U.S. markets and FDI are the characteristics of international business of clients, these two activities may be substitutes in terms of

increasing clients' risk. To some extent, if cross-listed on U.S. markets and FDI are substitutes, then the role played by FDI in common law countries, developing countries, and long geographic distance of countries in increasing risk may be less pronounced in cross-listed on U.S. markets case. To examine whether the cross-listed on U.S. market effect on the results, we further analyze the coefficient on *US*×*COMMON*, *US*×*DEVELOPING*, and *US*×*DISTANCE*, respectively. We expect a negative association between *US*×*COMMON* and *AFEE*, *US*×*DEVELOPING* and *AFEE*, and *US*×*DISTANCE* and *AFEE*, respectively.

Panel C of Table 5.7, presents the regression results about the incentive interactions variables (i.e. *US*×*COMMON*, *US*×*DEVELOPING*, and *US*×*DISTANCE*). The coefficients on *US*×*COMMON*, *US*×*DEVELOPING*, and *US*×*DISTANCE* are negative and significant (-1.220, p-value < 0.01; -0.3728, p-value < 0.01; and -5.463, p-value < 0.01). These results predict that clients assess U.S. markets negatively moderates the relationship between the audit fees and the number of common law countries, the number of developing countries, and the total geographic distance to FDI host countries, respectively.

5.5.4 EARNINGS MANAGEMENT RISK

Abbott, Parker, and Peters (2006) examine the relationship between audit fees and earnings management, and find that positive (negative) discretionary accruals, is associated with higher (lower) audit fees. This result provokes other studies add value of discretional accrual into their audit fees models (Badertscher et al., 2014; Lee, Li, and Sami, 2015; and Hoitash, Markelevich, and Barragato, 2007). In this section, we also discuss the effect of earnings management risk on the results.

Unlike with the case of FDI, earnings management are not the direct activity of international business, earnings management risk may not be substitutes for the risk from FDI. If earnings management risk and FDI are not substitutes, then the effects of FDI in common law countries, developing countries, and long geographic distance of countries on increasing risk may become greater under high earnings management risk. To examine whether the earnings management risk effect on the results, we further analyze the

coefficient on *ABSDA×COMMON*, *ABSDA×DEVELOPING*, and *ABSDA×DISTANCE*, respectively. We expect a positive association between *ABSDA×COMMON* and *AFEE*, *ABSDA×DEVELOPING* and *AFEE*, and *ABSDA×DISTANCE* and *AFEE*, respectively.

The first column of Panel D of Table 5.7, presents the regression results about the incentive interactions variables (i.e. *ABSDA×COMMON*, *ABSDA×DEVELOPING*, and *ABSDA×DISTANCE*). The coefficients on *ABSDA×COMMON*, *ABSDA×DEVELOPING*, and *ABSDA×DISTANCE* are positive and significant (0.898, p-value < 0.01; 0.413, p-value < 0.01; and 0.310, p-value < 0.05). These results predict that clients show high earnings management risk positively moderates the relationship between the audit fees and the number of common law countries, the number of developing countries, and the total geographic distance to FDI host countries, respectively.

Since there are many types of measures for discretional accrual, besides the original measure (i.e. *ABSDA*, absolute value of discretionary accruals derived from the approach in Ball and Shivakumar (2006)) in the control variables, we use two other approaches for discretional accrual (Dechow, Sloan, and Sweeney, 1995; and Kasznik, 1999). The results of the second and third column of Penal D of Table 5.7 remain unchanged. Thus, the results remain robust when using alternative dimensions for discretional accrual.

5.6 Robustness Checks[45]

5.6.1 VARIATIONS ON THE MEASURES OF CONTROL VARIABLES

We perform variations on the measures of three of the control variables and find the coefficient on *COMMON*, *DEVELOPING*, and *DISTANCE* to be positive and statistically significant at $p < 0.01$; *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* to be negative and statistically significant at $p < 0.01$ in each case. In detail, we substitute the square root of net sales, in millions, (*SALE*) (Lyon and Maher, 2005) for the square root of assets (*ASSET*) as the measure of size. We also substitute dummy variable equal to 1 if the clients' income before extraordinary items is negative in current or prior year, and 0 otherwise (*LOSS2*) (Donohoe and Knechel, 2014); for the

[45] Robustness checks are untabulated.

dummy variable equal to 1 if the client reported a loss in any of the prior three years, and 0 otherwise (*LOSS*) (Kannan, Skantz, and Higgs, 2014). Lastly, we substitute the Firm-year conditional conservatism measure based on Ball and Shivakumar (2005)'s accrual-cash flows-based model modefied by Lee, Li, and Sami (2015) (*CONS2*) and Ball and Shivakumar (2005)'s current and lagged earnings-changes model modified by Lee, Li, and Sami (2015) (*CONS3*) for Khan and Watts (2009)'s model (*CONS*).[46]

5.6.2 ALTERNATE CONTROL VARIABLES

Casterella et al. (2004) provides evidence that the industry specialization connect with higher audit fees when clients with lower bargaining power. Based on this finding, some studies using auditor industry specialization, and clients bargaining power into their control variables (Kwon, Lim, and Simnett, 2014; Jha and Chen, 2015; and Beck and Mauldin, 2014). To make sure these two factors are not driving the results, we include auditor industry specialization (*IND_SPEC*), and clients' bargaining power (*POweR*) proxies as additional control variables. In addition, Donohoe and Knechel (2014) find that auditors charge relatively higher audit fee due to tax aggressiveness that increase auditors' concerns about earnings management. To make sure tax aggressiveness is not driving the results, we include tax aggressiveness (*TA_AGG*) proxy as an additional control variable. Finally, to improve the robustness of the results, we add another four variables to capture the life cycle of clients (*GROW*) (Donohoe and Knechel, 2014), Tobin's Q (*Q*) (Jha and Chen, 2015), accounting policy changing of clients (*POL_CHA*), and scope of consolidation changing of clients (*SCO_CHA*) into the regression models. All the additional variables are defined in Table 5.1. The results are all consistent with the former multivariate regression results.

[46] See (Lee, Li, and Sami, 2015) at pp. 110-112.

5.6.3 ENDOGENEITY

It is possible that self-selection bias could affect the results. Given the possibility that clients who engage in FDI may be inherently different from the counterpart (i.e. clients who do not engage in FDI), we use a Heck man two-stage approach. In the first stage, based on the prior studies (Gu and Semba, 2016; Horaguchi, 1992), we estimate a probit selection model that includes *CAP*, *ADV*, *INTEREST*, *INTEN_SAME*, and *ROA2* as independent variables, which defined in Table 5.1. The results of the first stage indicate that p-value of all the variables are less than 0.053, and the psedo-R^2 is 0.052. Then we include the inverse Mills ratio from the first stage into the second stage models (i.e., Model (1), Model (2), and Model (3)), the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.030, 0.013, 0.442, -0.124, -0.0915, and -0.882, respectively, and all remain significant (p-value < 0.05). Thus, the results do not appear endogeneity problem.

5.6.4 CONSTANT YEN AUDIT FEE REGRESSIONS

Considering auditors charge audit fees directly from firm disclosures (Ghosh and Pawlewicz, 2009), we control for the possibility that the results are driven by general price increases over the sample period. We scale the audit fees by the GDP deflator published by the Word Bank for each year (*COAFEE*) and re-estimate model (1), model (2), and model (3) from Table 5.6.[47] The coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.078, 0.045, 0.047, -0.290, -0.179, and -0.202, respectively, and all remain significant (p-value < 0.01). Therefore, the results remain robust when controlling for GDP deflator.

[47] Data obtained from the World Bank website (http://data.worldbank.org/indicator/NY.GDP.DEFL.ZS): 2004 = 1.08; 2005 = 1.06; 2006 = 1.05; 2007 = 1.04; 2008 = 1.03; 2009 = 1.02; 2010 = 1.00; 2011 = 0.98; 2012 = 0.97; 2013 = 0.97; 2014 = 0.98.

5.6.5 DIFFERENT SAMPLE PERIODS

The full sample includes time periods about Kanebo scandal around 2006 to 2007.[48] Skinner and Srinivasan (2012) mention that for fiscal year 2006, most of the clients switch away from ChuoAoyama due to the worse auditor reputation. Several studies provided that there is a negative relationship between audit fees and audit change (Williams, 1988; Scott and Gist, 2013). As an added robust check, we run the regression models using the period that do not affected by Kanebo scandal with 9,474 observations from 2008 to 2014. The results remain unchanged, the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.072, 0.037, 0.044, -0.236, -0.104, and -0.165, respectively, and all remain significant (p-value < 0.01).

We also concern the periods of the global financial crisis. From the beginning of the year 2007 to the end of year 2008, Japanese stock markets decreased dramatically. Ettredge, Fuerherm, and Li (2014) show that for the fee pressure during the recession years, the audit quality decreased in this period. To make sure the global financial crisis is not driving the results, we re-estimate the models with 3,781 observations from year 2007 to 2009. The results were qualitatively unchanged, the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.095, 0.064, 0.071, -0.340, -0.229, and -0.251, respectively, and all remain significant (p-value < 0.01). Thus, we conclude that the results are not impacted by the global financial crisis.

5.6.6 SAMPLE RESTRICTIONS

To make the sample with more uniform class of audit clients, we impose further sample restrictions. From the full sample, we drop (1) clients FDI in tax haven countries,[49] (2) clients that switched auditors, (3) clients audited by ChuoAoyama, and (4) clients

[48] Kanebo is a large Japanese firm engaged in a massive accounting fraud, and its auditor, ChuoAoyama as PwC's Japanese affiliate, suffered great damage to their reputation. Eventually, ChuoAoyama did not survive for this scandal.

[49] Tax haven countries refers to the definition of tax haven in (Dharmapala 2008).

audited by non-Big 4. This process leaves us with a sample of 8,391 observations. The results were qualitatively unchanged, the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.082, 0.049, 0.052, -0.165, -0.077, and -0.133, respectively, and all remain significant (p-value < 0.05).

In addition, for examining whether the results affected by the outlier variables, we cut outlying observations to the 1 percent and 99 percent levels. It leads to a sample of 6,838 observations, and the results remain unchanged, the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.016, 0.015, 0.026, -0.236, -0.091, and -0.066, respectively, and all remain significant (p-value < 0.05).

Last, for reaching a constant sample, we drop observations (1,822) for clients missing observations in one or more years, and re-estimate the regression models. The results are qualitatively similar to those reported in Table 5.6, the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.086, 0.052, 0.056, -0.240, -0.146, and -0.175, respectively, and all remain significant (p-value < 0.01).

5.6.7 SUB SAMPLE ANALYSIS

Considering the influence of size on the results, we separate the full sample into two subsample by size, small companies (less than the median of total assets) and large companies (greater than or equal median of total assets), then ran the regression models separately. Following the prior research (Abbott et al., 2003), we performed several Chow tests. The Chow tests F-statistic are significant,[50] suggesting that there is a structural break in the data. In spite of the different structures of small companies and large companies, the results of both segments remain unchanged. For the sub sample of small companies with 7,131 observations, the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.017,

[50] F(30, 14203) = 1222.60 with p-value = 0.000 for model (1); F(30, 14203) = 1227.72 with p-value = 0.000 for model (2); F(30, 14203) = 1228.85 with p-value = 0.000 for model (3).

0.012, 0.009, -0.270, -0.191, and -0.152, respectively, and all remain significant (p-value < 0.05). For the sub sample of big companies with 7,132 observations, the coefficient for *COMMON*, *DEVELOPING*, *DISTANCE*, *HOM×COMMON*, *HOM×DEVELOPING*, and *HOM×DISTANCE* is 0.042, 0.026, 0.030, -0.366, -0.193, and -0.288, respectively, and all remain significant (p-value < 0.01).

Appendix

5.A Sample description by country

Country CIA	abbr	obs	Legal system	Degree of development	Distance	Tax haven	Location
Algeria	DZA	9	mixed law	Developing economies	11,494	No	Northern Africa
Angola	AGO	11	civil law	Developing economies	13,479	No	Southern Africa
Argentina	ARG	266	civil law	Developing economies	18,025	No	South America
Australia	AUS	1,548	common law	Developed economies	7,033	No	Oceania
Bahamas	BHS	9	common law	Developing economies	12,438	Yes	Central America
Bahrain	BHR	58	mixed law	Developing economies	8,143	Yes	Western Asia
Bangladesh	BGD	79	mixed law	Developing economies	4,766	No	Southern Asia
Belgium	BEL	709	civil law	Developed economies	9,376	No	Western Europe
Bolivia	BOL	22	civil law	Developing economies	16,937	No	South America
Bosnia and Herzegovina	BIH	13	civil law	Transition economies	9,269	No	Eastern Europe
Brazil	BRA	1,374	civil law	Developing economies	16,861	No	South America
Brunei	BRN	29	mixed law	Developing economies	4,244	No	South-Eastern Asia
Bulgaria	BGR	30	civil law	Developed economies	8,932	No	Eastern Europe
Burma	MMR	53	mixed law	Developing economies	4,575	No	South-Eastern Asia
Cambodia	KHM	67	civil law	Developing economies	4,175	No	South-Eastern Asia
Canada	CAN	1,225	common law	Developed economies	8,305	No	Northern Africa
Chile	CHL	248	civil law	Developing economies	17,262	No	South America
China	CHN	7,000	civil law	Developing economies	2,979	No	Eastern Asia
Colombia	COL	134	civil law	Developing economies	14,600	No	South America
Costa Rica	CRI	41	civil law	Developing economies	13,286	No	Central America
Croatia	HRV	44	civil law	Developed economies	9,314	No	Eastern Europe
Czech Republic	CZE	501	civil law	Developed economies	8,944	No	Eastern Europe
Denmark	DNK	190	civil law	Developed economies	8,678	No	Northern Europe
Dominican Republic	DOM	22	civil law	Developing economies	13,212	Yes	Central America
Ecuador	ECU	37	civil law	Developing economies	14,779	No	South America
Egypt	EGY	54	mixed law	Developing economies	9,738	No	Northern Africa
El Salvador	SLV	22	civil law	Developing economies	12,617	No	Central America
Estonia	EST	23	civil law	Developed economies	7,754	No	Eastern Europe
Fiji	FJI	11	common law	Developing economies	7,164	No	Oceania
Finland	FIN	194	civil law	Developed economies	7,426	No	Northern Europe
France	FRA	1,442	civil law	Developed economies	9,901	No	Western Europe
Georgia	GEO	9	civil law	Transition economies	7,765	No	Eastern Europe
Germany	DEU	2,541	civil law	Developed economies	9,147	No	Western Europe
Ghana	GHA	23	mixed law	Developing economies	13,597	No	Western Africa
Greece	GRC	92	civil law	Developed economies	9,417	No	Western Europe
Guatemala	GTM	48	civil law	Developing economies	12,383	No	Central America
Hong Kong	HKG	3,338	mixed law	Developing economies	2,872	Yes	Eastern Asia
Hungary	HUN	400	civil law	Developed economies	8,924	No	Eastern Europe
India	IND	1,906	common law	Developing economies	6,154	No	Southern Asia
Indonesia	IDN	2,646	civil law	Developing economies	4,936	No	South-Eastern Asia
Iran	IRN	76	other	Developing economies	7,593	No	Western Asia
Ireland	IRL	141	common law	Developed economies	9,600	Yes	Western Europe
Israel	ISR	56	mixed law	Developed economies	9,066	No	Western Asia
Italy	ITA	821	civil law	Developed economies	9,650	No	Western Europe
Jamaica	JAM	11	common law	Developing economies	12,936	No	Central America
Jordan	JOR	11	mixed law	Developing economies	9,004	Yes	Western Asia
Kazakhstan	KAZ	36	civil law	Transition economies	5,738	No	Central America
Kenya	KEN	26	mixed law	Developing economies	10,853	No	Eastern Africa
Korea, South	KOR	2,694	mixed law	Developing economies	946	No	Eastern Asia
Kuwait	KWT	38	mixed law	Developing economies	8,330	No	Western Asia
Laos	LAO	41	civil law	Developing economies	3,809	No	South-Eastern Asia
Latvia	LVA	22	civil law	Developed economies	7,937	No	Eastern Europe
Lebanon	LBN	4	mixed law	Developing economies	8,829	Yes	Western Asia
Liberia	LBR	36	mixed law	Developing economies	14,216	Yes	Western Africa
Libya	LBY	6	other	Developing economies	10,846	No	Northern Africa
Lithuania	LTU	22	civil law	Developed economies	8,054	No	Eastern Europe
Luxembourg	LUX	117	civil law	Developed economies	9,381	Yes	Western Europe

5.A (continued)

Country CIA	abbr	obs	Legal system	Degree of development	Distance	Tax haven	Location
Madagascar	MDG	20	civil law	Developing economies	11,397	No	Eastern Africa
Malawi	MWI	11	mixed law	Developing economies	12,148	No	Southern Africa
Malaysia	MYS	2,689	mixed law	Developing economies	4,560	No	South-Eastern Asia
Mauritius	MUS	31	civil law	Developing economies	10,517	Yes	Southern Africa
Mexico	MEX	1,244	civil law	Developing economies	10,933	No	Central America
Micronesia	FSM	4	mixed law	Developing economies	3,839	No	Oceania
Mongolia	MNG	33	civil law	Developing economies	2,962	No	Eastern Asia
Montenegro	MNE	11	civil law	Transition economies	9,420	No	Eastern Europe
Morocco	MAR	32	mixed law	Developing economies	11,542	No	Northern Africa
Netherlands	NLD	1,215	civil law	Developed economies	9,155	No	Western Europe
New Zealand	NZL	438	common law	Developed economies	9,327	No	Oceania
Nigeria	NGA	94	mixed law	Developing economies	12,715	No	Central America
Norway	NOR	142	mixed law	Developed economies	8,175	No	Northern Europe
Oman	OMN	14	mixed law	Developing economies	7,883	No	Western Asia
Pakistan	PAK	78	common law	Developing economies	6,256	No	Southern Asia
Panama	PAN	204	civil law	Developing economies	13,641	Yes	Central America
Papua New Guinea	PNG	22	mixed law	Developing economies	4,770	No	Oceania
Paraguay	PRY	19	civil law	Developing economies	17,924	No	South America
Peru	PER	190	civil law	Developing economies	15,552	No	South America
Philippines	PHL	1,481	mixed law	Developing economies	3,020	No	South-Eastern Asia
Poland	POL	467	civil law	Developed economies	8,544	No	Eastern Europe
Portugal	PRT	177	civil law	Developed economies	10,939	No	Western Europe
Qatar	QAT	28	mixed law	Developing economies	8,113	No	Western Asia
Romania	ROU	73	civil law	Developed economies	8,865	No	Eastern Europe
Russia	RUS	562	civil law	Transition economies	3,799	No	Eastern Europe & Northern Asia
Samoa	WSM	22	mixed law	Developing economies	7,596	Yes	Oceania
Saudi Arabia	SAU	214	other	Developing economies	8,670	No	Western Asia
Senegal	SEN	7	civil law	Developing economies	13,741	No	Western Africa
Serbia	SRB	38	civil law	Transition economies	9,166	No	Eastern Europe
Singapore	SGP	3,461	common law	Developing economies	5,224	Yes	South-Eastern Asia
Slovakia	SVK	105	civil law	Developed economies	8,824	No	Eastern Europe
Slovenia	SVN	61	civil law	Developed economies	9,273	No	Eastern Europe
Solomon Islands	SLB	33	mixed law	Developing economies	5,370	No	Oceania
South Africa	ZAF	322	mixed law	Developing economies	13,910	No	Southern Africa
Spain	ESP	748	civil law	Developed economies	10,726	No	Western Europe
Sri Lanka	LKA	107	mixed law	Developing economies	6,613	No	Southern Asia
Sweden	SWE	397	civil law	Developed economies	7,995	No	Northern Europe
Switzerland	CHE	331	civil law	Developed economies	9,539	Yes	Western Europe
Taiwan	TWN	3,623	civil law	Developing economies	2,090	No	Eastern Asia
Tanzania	TZA	21	common law	Developing economies	11,582	No	Eastern Africa
Thailand	THA	4,568	civil law	Developing economies	4,435	No	South-Eastern Asia
Tonga	TON	11	common law	Developing economies	7,959	Yes	Oceania
Trinidad and Tobago	TTO	11	common law	Developing economies	14,439	No	Central America
Tunisia	TUN	31	mixed law	Developing economies	10,616	No	Northern Africa
Turkey	TUR	227	civil law	Developing economies	8,549	No	Western Asia
Uganda	UGA	10	mixed law	Developing economies	11,387	No	Central America
Ukraine	UKR	67	civil law	Transition economies	8,094	No	Eastern Europe
United Arab Emirates	ARE	388	mixed law	Developing economies	7,967	No	Western Asia
United Kingdom	GBR	2,337	common law	Developed economies	9,309	No	Western Europe
United States	USA	6,133	common law	Developed economies	10,044	No	Northern Africa
Uruguay	URY	14	civil law	Developing economies	18,713	No	South America
Vanuatu	VUT	11	mixed law	Developing economies	6,545	Yes	Oceania
Venezuela	VEN	166	civil law	Developing economies	14,534	No	South America
Vietnam	VNM	1,620	civil law	Developing economies	3,870	No	South-Eastern Asia
Zambia	ZMB	11	mixed law	Developing economies	12,600	No	Southern Africa
Zimbabwe	ZWE	22	mixed law	Developing economies	12,897	No	Southern Africa

CHAPTER 6 CONCLUSIONS

6.1 Summary

We are motivated to investigate whether interested parties could get the implications through analyzing the characteristics of Japanese firms' FDI. In detail, we try to answer several important questions for each group of interested parties (i.e. investors, tax policy makers, and audit regulators) in Chapter 2, Chapter 3, Chapter 4, and Chapter 5, respectively.

Chapter 2 examines the correlation between FDI and three types of earnings qualities (earnings management, value relevance of accounting information, and reporting conservatism), using two measures (quantity and percentage) to represent the extent of influence of common law countries and developed countries. We hypothesize that firms under greater influence of common law countries have higher earnings qualities. Similarly, we also hypothesize that firms under greater influence of developed countries have higher earnings qualities. We test out hypotheses with the propensity score matching sample of 6,973 firm-year data for the year 2005-2014.

We find that FDI can improve earning quality by reducing earnings management risk, and firms under greater influence of common law countries or developed countries (only for the dimension of quantity) have a lower level of earnings management risk. We also find that FDI has no significant correlation with value relevance, but firms under greater influence of common law countries or developed countries (only for the dimension of quantity) have a higher level of value relevance. Lastly, we find that FDI can damage earning quality by impairing the reporting conservatism, but firm under greater influence of common law countries or developed countries (only for the dimension of percentage) have a higher level of reporting conservatism.

Chapter 3 aims to raise both the local and overseas investors' attention on the financial statement of the firms with FDI for improving their investment performance using the fundamental analysis and improve some aspects of fundamental analysis methodologies. In Chapter 3, firstly, we collect all of the variables from financial statements and stock price information, which will be used in models estimation. Second, we use two stages for model estimation with test period (fiscal year 2005-2009). Third,

we use estimated models for predicting *D*-value and *Pr*-value with other test period (fiscal year 2010-2014). Then we set the trading strategy based on the *D*-value and *Pr*-value, respectively. Last, we compute two types of Buy-and-hold Returns (market-adjusted buy-and-hold returns and size-adjusted buy-and-hold returns) to judge the profitability of the trading strategies.

Based on the results of full sample group, we find that there is a potential for making abnormal profits by distinguishing between undervalued and overvalued stocks with cross-sectional model, not by forecasting one-year-ahead earnings changes with logistic model. We also find that there is a relatively higher potential for making abnormal profits by combining the results of two different models (cross-sectional model and logistic model). More importantly, the results of subsample with FDI in common law countries or developed countries show that subsample analysis can afford more profitability strategies in all aspects compare to the full sample analysis.

In Chapter 4, we try to answer the question: what are the types of portfolio of FDI that may lead to a negative effect on tax avoidance practice? For answering this question, we carry out multivariate regression tests for four hypotheses on the relationship between the portfolio of FDI and tax avoidance practice from the perspective of the legal system and the degree of development.

Using 8,546 firm-year observations from Japanese listed firms in the period fiscal year 2003-2014, we find that the greater the proportion of common law countries or developed countries that a firm has in its FDI portfolio, the less likely it is to engage in tax avoidance practice. We also find that the proportion of common law countries or developed countries in a firm's FDI portfolio reduces the effect of foreign firm ownership on the firm's tax avoidance practice. In addition, we provide some sensitivity tests as a robustness check. All of the results remain the same. Overall, the results suggest that a firm with a high proportion of common law countries (developed countries) in FDI portfolio is less aggressive in tax avoidance practice. This is consistent with the idea that a high proportion of common law countries (developed countries) in FDI portfolio could be a dimension of investor protection (CSR practice) that affects tax avoidance practice.

In Chapter 5, we are motivated to examine the effects of the client FDI characteristics on audit fees from the perspective of the legal system, degree of

development, and geographic distance. We carry out multivariate regression tests for the three hypotheses on the relationship between the client FDI characteristics and audit fees, and for another three hypotheses on the effect of client oriented industry characteristic on those relationships.

Using a sample of 14,263 firm-year observations from Japanese listed firms in the period fiscal year 2004 to 2014, we find that audits of companies investing in a greater number of common law countries and developing countries, respectively, will exhibit higher audit fees. Total geographic distance to host countries also increases audit fees. Further, we find that the homogeneity of industries in which a firm competes negatively moderates these relationships.

Based on the additional tests, firstly, we find such kind of FDI characteristics also bring higher (lower) audit fees premiums (discounts). Secondly, we find client with a higher proportion of common law (developing) countries in its FDI portfolio will also exhibit higher audit fees. Thirdly, we find that clients assess U.S. markets (with high earnings management risk) negatively (positively) moderates the relationship between the specific FDI characteristics and the audit fees.

In addition, we provide several robust tests on the main findings. All of the results remain unchanged. To sum up, Chapter 5 suggests that auditors do consider audit fees based on clients' FDI characteristics. The findings of Chapter 5 are consistent with the idea that investing in a greater number of common law countries, developing countries, and the geographic distance of countries could be a dimension of litigation risk, business risk, and audit effort that affects audit fees, respectively.

6.2 Implications

To sum up with the findings of this dissertation, we conclude that interested parties could get the implications through analyzing the characteristics of Japanese firms' FDI from the perspective of legal system, degree of development, and geographic distance.

The findings of Chapter 2 have implications not only for investors and security analysts, but also for policy makers, auditors, standard setters, and other accounting

information users in enhancing their understanding of the legal systems and degree of development differences, and their impact on earnings qualities.

The methods and findings of Chapter 3 may inspire investors' enthusiasm to utilize fundamental analysis based on financial statements of Japanese firms that engage in FDI. In addition, the analysis methods could be useful not only for the Japanese market but also for the other countries' stock markets.

Chapter 4 may enrich the tax policy makers' understandings on the relationship between corporate decision-making, including host countries choice, and tax avoidance practice. Given the concern of the tax avoidance of multinational firms, the findings of Chapter 4 may help policy makers to improve the effect and efficiency of tax policies. If the FDI portfolio with high proportion of common law countries or developed countries will benefit National Tax Agency through higher tax rate, then overlook of the trend of development with these types of FDI may result in decreasing these benefits.

Chapter 5 may be benefit to regulators when they consider the relationship between auditors' audit fees setting and corporations' FDI characteristics. In addition, Chapter 5 may be beneficial to auditors for charging audit fees more competitively. Furthermore, the dimensions of characteristics of FDI provide a methodological contribution on enriching the research of audit fees.

6.3 Limitations

We recognize that this dissertation has limitations. Here we interpret the limitation of each chapter as follows.

In Chapter 2, we use a single proxy to estimate each proxy of earnings quality. Additionally, although we use two different dimensions of quantity and percentage to represent the extent of influence of common law countries and developed countries on firm, we could not control the different characteristics of each country very well. In addition, we have not investigated other perspectives of FDI, like the location of the FDI host countries.

In Chapter 3, we pick numerous of variables from financial statements, and drop the entire firm-year sample containing any missing variables, thus we may miss some

interesting samples in the analysis[51]. Additionally, although we select many variables there are still some financial statements variables that we do not investigate in Chapter 3, such as LIFO information, effective tax rate, book to market ratio, times payable earned, etc. We also ignore non-financial variables in Chapter 3. Furthermore, we do not use alternative methods such as neural network techniques for robustness check. Some studies (Cao, Leggio, and Schniederjans, 2005; Lam, 2004) use the neural network techniques for financial performance perdition and they argue that this technique can improve prediction accuracy.

In Chapter 4, although we pick quit a few control variables from financial statements there are still some variables that we do not investigate, such as auditor information and other ownership information. In addition, we just use two dimensions for the portfolio of FDI, thus other characteristics of portfolio of FDI are ignored (e.g. the proportion of countries with higher corporate statutory tax rate than Japan, the proportion of countries with relatively close distance to Japan, etc.).

In Chapter 5, although we select numerous control variables from financial statements, for the data limitation we could not investigate some interesting variables in Chapter 5, such as information about bribe, CFO, board member, etc. Additionally, we just use three dimensions for representing the FDI characteristics. It is possible to investigate the FDI characteristics on other perspectives (e.g. political difference, cultural difference, knowledge distance, etc.).

6.4 Future Research

In future research, for each chapter, it will be useful to improve on the research in theory developing, refine the data selection process, collect new test variables, do robust

[51] Barth, Landsman, and Lang (2008) use a sample of firms in 21 countries that adopted IAS during the period of year 1994 to year 2003 to do the research about the relationship between accounting standards and accounting quality. They find that firms applying IAS will show relatively lower level of earnings management risk, greater timely loss recognition, and more value relevance of accounting information. It means that accounting standard can influence on earnings quality. For Japanese listed firm, they can choose one accounting standard from four types of accounting standards (i.e. Japanese GAAP, U.S. GAAP, IFRS, Japan's Modified International Standards). In this chapter, however, we ultimately keep only one type of accounting standard Japanese firms (Japanese GAAP), after deleting the missing sample.

check with other methods, and investigate the FDI characteristics on other perspectives (e.g. accounting standard, political difference, cultural difference, knowledge distance, language difference, etc.). Furthermore, Lu, Liu, and Wang (2011) find that firms' competitive advantages and the level of industry dynamics affect the incentive of FDI. We are motivated to develop the hypotheses and retest the results of each chapter with subsamples by industry.

Besides the sub topics (earnings quality, fundamental analysis, tax avoidance, and audit fees) discussed in Chapter 2, Chapter 3, Chapter4, and Chapter5, there are still a number of important topics have not been well discussed. In future, we will try to find answers to other important questions for interested parties. For example, the future research questions listed as follow: (1) Whether the IFRS adoption is related with firms' FDI characteristics? (2) What types of characteristics of FDI will lead to a positive effect on cost of debt? (3) Can firms' life cycle be reflected in the FDI characteristics?

The future research of the dissertation is shown in Table 6.1.

Table 6.1 Future research

Recent Research				Future Research			
Topic	**Interested parties**	**Perspectives of FDI**		**Topic**	**Interested parties**	**Improvement points**	**Perspectives of FDI**
Earnings Qualities	○Investors ○Policy makers and regulators ○Auditors	○Legal systems ○Degree of development	⇨	Earnings Qualities	○Investors ○Policy makers and regulators ○Auditors	○Theory developing ○Data selection process ○New test variables ○Robust check ○Subanalysis by industry	○Legal systems ○Degree of development ○Geographical distance ○Accounting standard ○Political difference ○Cultural difference ○Knowledge distance ○Language difference
Stock Return	○Investors			Stock Return	○Investors		
Tax Avoidance	○Tax Policy makers			Tax Avoidance	○Tax Policy makers		
Audit Fees	○Auditors ○Audit regulators	○Legal systems ○Degree of development ○Geographical distance		Audit Fees	○Auditors ○Audit regulators		
				IFRS	○Accounting standard makers		
				Cost of debt	○Bankers, and Debtors		
				Firm life cycle	○Rivals, Analysts, Investors		

We leave these to future research to enhance the interested parties' understanding of the characteristics of Japanese firms' FDI.

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